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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 18 1942

THE DIAGNOSIS AND TREATMENT OF MALARIA IN ENGLAND

BY

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One of the consequences of the war is the arrival in this country of a considerable number of cases of malaria, especially among members of His Majesty's Forces and the Mercantile Marine. As malaria is very amenable to treatment if recognized in time, and as it is highly dangerous and often fatal if not recognized and adequately treated, it is obvious that its diagnosis and treatment are matters of great importance. The object of this article, which has been written at the request of the War Office and Ministry of Health, is to set out briefly and simply the main points in the diagnosis and treatment of the disease.

Diagnosis

There are three common forms of malaria, caused by three different but closely related malaria parasites—viz., simple or benign tertian malaria, due to *Plasmodium vivax*; quartan malaria, due to *Plasmodium malariae*; and malignant or subtertian malaria, due to *Plasmodium falciparum*. These parasites inhabit the red blood cells. They have a regular cycle of multiplication, which in the case of simple tertian malaria is complete in 48 hours, in quartan malaria in 72 hours, and in malignant or subtertian malaria in about 36 hours. When multiplication is complete the young parasites escape from the infected red cells into the plasma and invade new red cells, and the patient experiences a malarial paroxysm.

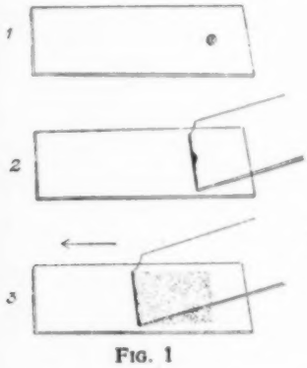

FIG. 1

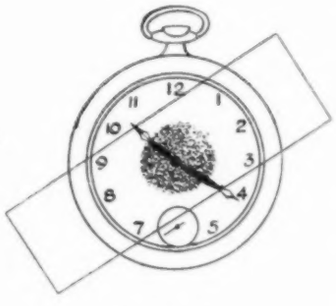

FIG. 2

FIG. 1.—Diagrams illustrating method of making thin film. 1. Place a small drop of blood near end of slide. 2. Apply spreader slide at an angle of about 30° and allow blood to flow across angle formed by the two slides. 3. Push spreader forward at uniform rate, drawing the blood after it; a thin evenly distributed film will result.

FIG. 2.—Diagram illustrating method of making thick film. Place a small drop of blood on centre of slide and spread with needle until it occupies about the area of a sixpence. N.B.—The film should not be so dense that the hands of a watch cannot be seen through it.

A definite diagnosis of malaria can be made only by microscopical examination of the blood and recognition of the parasite. While this may be beyond the scope of the general practitioner, it should at least be possible to make suitable blood films and send them to a pathological laboratory for a report. A method of preparing thin and thick blood films is shown in Figs. 1 and 2. Since the parasites disappear quickly from the blood as the result of treatment it is important that blood films should be made before any antimalarial drug is given.

Simple Tertian Malaria

Broadly speaking, acute malaria consists of a series of malarial paroxysms associated with progressive blood destruction, debility, and enlargement of the spleen. The paroxysms of simple tertian malaria are very characteristic. They consist of three stages:

Cold Stage or Rigor.—During this stage the patient complains of a sensation of intense cold, his teeth chatter, and he shivers violently; the feeling of cold is, however, entirely subjective, and if the temperature is taken it will be found to be raised. The cold stage lasts about an hour.

Hot Stage.—The feeling of cold gives place to a sensation of intense heat; the skin is hot and dry, the face flushed, the pulse full and bounding; headache and vomiting are often severe, and the temperature is raised to from 103° to 106° F. or even higher. This stage lasts 3 to 4 hours.

Sweating Stage.—The patient breaks out into a profuse perspiration, his temperature falls rapidly, the headache disappears, the vomiting ceases, and the paroxysm is over, leaving the patient somewhat exhausted but otherwise little the worse for his experience. This stage lasts 2 to 4 hours.

The duration of the complete simple tertian paroxysm varies, therefore, from about 6 to 10 hours. Typically in this type of malaria a paroxysm recurs with almost clocklike regularity every 48 hours, and the temperature chart can hardly be confounded with that of any other complaint (Fig. 3). Unfortunately, however, all the parasites in the blood of a case of simple tertian malaria may not complete the cycle of multiplication on the same day, some of them reaching maturity on Monday, Wednesday, Friday, and Sunday, and the remainder on Tuesday, Thursday, and Saturday. In such cases of so-called double infection there is a malarial paroxysm every day, and the temperature chart is of the quotidian instead of the tertian type (Fig. 4). But even here the chart exhibits certain striking characteristics—viz., the regularity of the daily febrile paroxysms, their short duration (6 to 10 hours), and the fact that the febrile disturbances are separated by a definite afebrile period lasting at least 12 hours. Except at the beginning of the attack before the paroxysms have become fully developed, when the temperature tends to be irregular, the simple tertian temperature chart is characteristic enough to suggest to the physician the true nature of the complaint.

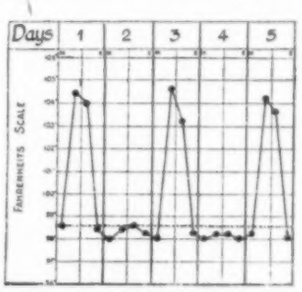

FIG. 3

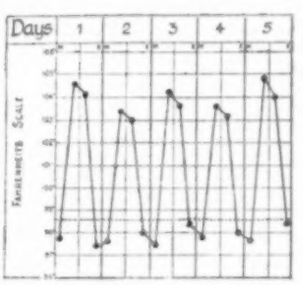

FIG. 4

FIG. 3.—Typical simple tertian temperature chart.
FIG. 4.—Quotidian simple tertian temperature chart.

If treatment is withheld and the disease is allowed to run its course, successive paroxysms result in progressive anaemia and debility; the spleen enlarges, the patient becomes icteric (haematogenous jaundice), and he often develops herpes, especially of the lips. If still untreated he may die of exhaustion, or the paroxysms may become less severe and finally cease and the disease become chronic. In this condition the patient remains in poor health; he is anaemic, the spleen is palpable, he often suffers from slight febrile disturbances, and is liable to relapse into the acute stage.

Quartan Malaria

Quartan malaria shows no essential differences from simple tertian malaria except that the cycle of multiplication of the parasite occupies 72 hours, and consequently the patient has a paroxysm, which is in all respects similar to that of the simple tertian paroxysm, every 72 hours—i.e., on the 1st, 4th, 7th, 10th days, and so on. Here again so-called double infections are not uncommon, so that not infrequently patients suffering from quartan malaria may have paroxysms on the 1st and 2nd, 4th and 5th, 7th and 8th days, and so on.

Malignant Tertian

Malignant tertian malaria is, however, a widely different and highly dangerous infection. The paroxysms are atypical; the cold stage is of short duration and ill defined or even absent, whilst the hot stage is greatly prolonged and is associated with intense headache, frequent vomiting, and severe constitutional disturbance. The ill-defined nature of the cold stage or rigor in malignant tertian malaria is a common cause of failure to suspect the true nature of the condition by medical men who have no special knowledge of the disease, and by the patients themselves, in whose mind the rigor is so firmly associated with malaria that a rigor and a malarial paroxysm have come to be synonymous.

The temperature chart of malignant tertian malaria bears little resemblance to that of simple tertian and is consequently a common cause of failure to diagnose the condition correctly. Owing to the prolongation of the hot stage the length of the

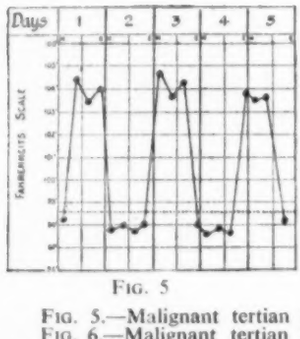

FIG. 5

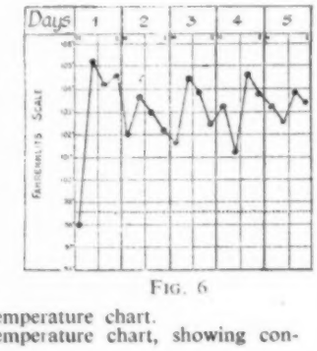

FIG. 6

FIG. 5.—Malignant tertian temperature chart.
FIG. 6.—Malignant tertian temperature chart, showing continuous fever.

febrile disturbance sometimes exceeds 24 hours. Moreover, as the interval between successive paroxysms is nearer 36 than 48 hours, the afebrile period between successive febrile disturbances is relatively short (Fig. 5). The greatest difficulty, however, is met with in cases of so-called double malignant tertian infection, in which the various paroxysms tend to run one into another, so that the temperature merely remits or is actually continuous (Fig. 6). It cannot be too strongly emphasized that a continuous temperature in malaria is a grave sign, and indicates that unless adequate treatment is promptly given the disease will soon end fatally.

In untreated acute malignant tertian malaria the general condition of the patient deteriorates much more rapidly than in the other forms of the disease. Persistent bilious vomiting (bilious remittent fever) is common, and the patient may quickly pass into a state of low muttering delirium (typhoid remittent fever).

The red corpuscles infected with the malignant tertian parasite show a marked tendency to stick to one another and to the endothelial lining of the capillaries, thereby occluding the lumen of the minute blood vessels. When this occurs, as is only too likely to be the case in untreated patients, there develop pernicious signs of the most diverse character depending on the site of the capillaries most damaged. Unfortunately, the brain capillaries are often involved, thus giving rise to the cerebral forms of the disease, one of the commonest manifestations of which is coma. The alimentary canal may be particularly involved, resulting in the gastric form of the disease associated with severe epigastric distress and incessant vomiting of blood-stained material, or in the dysenteric form associated with diarrhoea and the passage of blood. It is important to note that in these very severe forms of the disease the skin may be cold and the patient collapsed, although the rectal temperature is raised.

Rules for Guidance in Diagnosis

From the foregoing brief summary of the disease it is clear that clinical diagnosis, especially in the severest cases, is merely a matter of surmise in the absence of a blood examination. In these times, when so many cases are arriving at the main ports and are being distributed all over the country, it is imperative for the saving of life that medical practitioners should be on the look out for the disease and should know how to proceed. For their guidance the following rules are suggested.

1. Every sick individual recently returned from a malarial country should be suspected to be suffering from malaria, even in the absence of a history of previous attacks, unless some other diagnosis is obvious. This generalization applies even though the patient's temperature is normal at the time he is seen.
2. Ascertain whether the patient is obviously anaemic and whether the spleen is palpable; if these signs are present the suspicion that the case is one of malaria is strengthened, but their absence does not exclude malaria.
3. Make thin and thick blood films according to the directions given above and send them to a pathological laboratory for examination.
4. If the patient is ill, or if several days must elapse before the pathologist's report can be received, treat the patient on the assumption that he is suffering from malaria.
5. If the pathologist's report turns out to be negative, no harm has been done beyond the wastage of a certain amount of an antimalarial drug; whereas if it turns out to be positive the prompt treatment may well have prevented a catastrophe. In the event of a positive report the treatment of the acute attack must be followed by suppressive treatment as described below.

Treatment

There are two drugs which are invaluable in the treatment of malaria: (1) quinine, an alkaloid from cinchona bark; and (2) mepacrine, a synthetic compound. There is also another synthetic compound, pamaquin, which possesses certain special therapeutic properties, but, as it has no curative action on malignant tertian malaria and is highly toxic, it is unsuitable for general practice and need not be considered here. Unfortunately, although everybody of experience is agreed about the value of quinine and mepacrine, there is not a similar unanimity of opinion regarding the way in which they should be used. Little seems to be gained by discussing here the merits and demerits of the numerous courses of treatment that have been recommended, and it seems best to confine ourselves to methods which have been employed with uniform success for many years in the treatment of thousands of cases at the Liverpool School of Tropical Medicine.

Quinine

In the ordinary case quinine is best given in solution by the mouth. In Liverpool the following mixture, which is known as *mistura tropica*, is used:

℞ Quinin. sulph .. .. gr. x
Acid. sulph. dil. .. .. ♏xx
Aq. chlorof. .. .. ad ʒss

A tablespoonful—i.e., 10 gr. of quinine—is given thrice daily for 4 days. If the patient is gravely ill, with persistent vomiting, oral treatment should be preceded by an intramuscular injection of quinine. The best salt for this purpose is quinine bihydrochloride, which is 50% soluble in water. Ampoules containing 10 gr. of quinine bihydrochloride in solution are supplied by the wholesale houses, and the contents of one of these ampoules should be injected into the muscle with aseptic precautions. Except in cases of cerebral malaria with

coma, it is rarely necessary to give more than one injection, and treatment should be completed by the oral route as outlined above.

The outlook in cerebral cases with deep coma is notoriously grave, and in such cases an intravenous injection should also be given. The contents of the ampoule containing 10 gr. of quinine bihydrochloride should be diluted with 1/2 to 1 pint of hypertonic saline (3%) and run very slowly into the vein. If within 12 hours the patient has recovered consciousness and is able to swallow, the usual oral treatment should follow. If, however, he is still unconscious the intravenous injection should be repeated; but, as already stated, the outlook in such cases is bad—a fact which indicates the urgent necessity for diagnosis and treatment before this calamity develops.

In our experience, provided the patient is not comatose and moribund, this line of treatment invariably causes the parasites to disappear from the blood, the temperature to subside, and the general condition to improve enormously within 3 or 4 days; if this has not happened there is something wrong with the diagnosis, and some other cause for the illness must be sought.

Although this short course of quinine treatment cures the attack in a dramatic manner the infection is not sterilized, and if nothing more is done a relapse will occur within a few weeks in a large number of cases. With the object of preventing relapses and enabling the patient to return to work in safety, "suppressive" treatment must be administered. This consists in the oral administration of a small dose of quinine daily or of larger doses on each of two consecutive days each week. In Liverpool it is our custom to discharge the patient from hospital a few days after the treatment of his acute attack and to instruct him to take 20 gr. of quinine—i.e., one tablespoonful of *mistura tropica* twice daily—each Saturday and Sunday, for a period of 8 weeks. No other treatment is necessary, and the vast majority of patients are able to carry on their ordinary activities perfectly well and without further trouble. A few may have occasional slight relapses while taking this suppressive treatment, but these are not serious, and are dealt with by the subsequent week-end doses. Some cases, especially those of simple tertian and quartan malaria, relapse after the end of suppressive treatment, and in such cases treatment must be continued.

Mepacrine

This synthetic compound is supplied in tablets suitable for oral administration. The course for the treatment of the acute attack is 1 tablet (0.1 g.) thrice daily for 7 days. Its action is similar to that of quinine, and the 7-day course suffices to cause parasites to disappear from the blood and the signs and symptoms to subside. In the very severe cases referred to above, mepacrine treatment should be preceded by one or two intramuscular or intravenous injections of quinine bihydrochloride, as the salt of mepacrine suitable for injection may not be obtainable. With the object of preventing relapses, suppressive treatment must be administered in the form of 2 tablets (0.2 g.) of mepacrine each Saturday and Sunday for 8 weeks.

Conservation of Quinine.—In these days it is very desirable to conserve the limited stocks of quinine, and consequently whenever possible mepacrine should be used instead of quinine. Even if quinine is administered for treatment of the acute attack, mepacrine should be given for the subsequent suppressive measures, and the more so as there is some evidence to suggest that this drug is a more efficient suppressive than is quinine.

Toxic Effects of Quinine and Mepacrine

Apart from temporary tinnitus and deafness and sometimes slight gastric disturbance, there are no ill effects from quinine in the doses mentioned. Mepacrine is a dye, and even in the doses recommended may produce a yellow discoloration of the skin, which must not be mistaken for jaundice; the discoloration usually fades in the course of a week or two after the drug is stopped, but it may persist for as long as three months. A few patients suffer from mild gastro-intestinal effects, and very occasionally mepacrine acts as a cerebral excitant and produces mental disturbance and even mania, but these unpleasant effects are temporary, and soon disappear when the drug is stopped.

FACTORS INFLUENCING THE INCREASED INCIDENCE OF PULMONARY TUBERCULOSIS IN GLASGOW

BY

STUART LAIDLAW, B.Sc., M.D., D.P.H., D.P.A.

AND

DUNCAN MACFARLANE, M.B., Ch.B., D.P.H.

(From the Public Health Department, Glasgow)

Following our previous investigation into the increased incidence of and mortality from tuberculosis in Glasgow (*Journal*, Sept. 27, 1941, p. 436), we have recently carried out a detailed investigation into the first 1,600 confirmed cases of pulmonary tuberculosis notified during the year 1941, with special reference to the effect of occupation and hours of work.

The Rise in Notifications

During 1941 the number of notifications of pulmonary tuberculosis again rose in Glasgow from the previous year's high level of 1,908 to 2,066. Table I compares the age and sex distribution of the cases notified during the two war years, 1940 and 1941, with the average of the last two peace years, 1938 and 1939.

TABLE I.—*Age and Sex Distribution*

Age	Males			Females		
	Average 1938-9	1940	1941	Average 1938-9	1940	1941
–15 years ..	118	92	134	84	111	136
–25 ,, ..	236	287	300	341	437	454
–35 ,, ..	165	218	214	181	214	219
–45 ,, ..	147	164	184	65	82	82
–65 ,, ..	222	206	230	65	53	69
65+ ,, ..	25	31	32	10	13	12
Total ..	913	998	1,094	746	910	972

The table demonstrates that the notifications of pulmonary tuberculosis in 1941 for males show an increase of 9.6% over 1940 and 19.8% over the average of 1938-9. The relative female figures are 6.8% and 30.3%. A feature of the table is that the under-15 age group has shown a marked increase in both sexes, and there has also been an increase in the over-45 age group confined to males. The number of cases recorded in the age groups 15–45 in males and 15–35 in females has only slightly increased during the past year, but exceeds 1938-9 by 27.3% for males and 28.9% for females.

Tables II and III give the total deaths from pulmonary tuberculosis, along with their distribution in age groups, for the years from 1938 to 1941.

TABLE II.—*Total Deaths*

	1938	1939	1940	1941
Males	534	537	664	615
Females	426	435	518	540
	960	972	1,182	1,155

TABLE III.—*Age Distribution*

Age	Males			Females		
	Average 1938-9	1940	1941	Average 1938-9	1940	1941
–15 years ..	25	25	34	27	26	30
–25 ,, ..	109	138	103	170	217	228
25+ ,, ..	401	501	478	233	275	282
Total ..	535	664	615	430	518	540

The figures show that the male death rate during 1941 is 13% above the average in 1938-9, although it has shown a slight fall since 1940; whereas the female death rate still continues to rise in all age groups, being just over 25% higher in 1941 than in 1938-9.

There is little change to be noted in the incidence and mortality of non-pulmonary tuberculosis, the notification rate being only 1.5% and the death rate 3% above 1940. Table IV shows at a glance the distribution of the non-pulmonary cases in the usual categories.

TABLE IV.—*Non-pulmonary Tuberculosis, 1939-41*

Year	Abdomen	Bones or Joints	Lymph Glands	Meninges	Skin, Genito-urinary, or Multiple	Total
1939 ..	82	166	90	137	52	527
1940 ..	80	198	130	184	60	652
1941 ..	108	226	104	182	44	664

Meningeal tuberculosis still remains relatively high, while bone and joint lesions again show an increase. A few more abdominal cases have been notified, but again the Senior Food Inspector reports no increase in the number of samples of Glasgow milk containing tubercle bacilli. In fact, only 18 out of 301 samples of transport milk examined during 1941 showed the presence of tubercle bacilli—that is, 6%, as contrasted with 6.3% for 1940 and 9.4% for 1939.

Occupational Analysis

Thus for another year the chief public health problem lies in the continued large number of cases of pulmonary tuberculosis. Table V compares the occupations among these pulmonary cases for the years 1938-41, and for simplicity of comparison gives the percentage increase for certain groups in 1941 compared with 1938-9.

TABLE V.—*Occupations in Notified Cases of Pulmonary Tuberculosis, 1938-41*

Group	Occupation	Average 1938–9		1940		1941		Percentage Increase
I	Scholars	123	196	102	190	160	260	30
	Under school age	73		88		100		37 — 32·6
II	Domestic class ..		305		368		393	28·9
III	(*a*) Commercial class	248		212		230		
	(*b*) Professional class	21	269	28	240	46	276	2·6
IV	Soldiers, sailors, airmen		34		71		145	War increase
V	Miscellaneous (includes modellers, retired persons, no occupation)		97		91		74	-25
VI	(*a*) Tradesmen ..	187		230		204		
	(*b*) Skilled workers	219	406	338	568	294	498	22·7
	(*c*) Unskilled workers	210		231		254		
		142	352	149	380	166	420	19·3
	(*d*) Labourers ..							
	Total of (*a*), (*b*), (*c*), (*d*)		758		948		918	21·1
	Total of all groups		1,659		1,908		2,066	24·3

Although this classification is convenient for general statistical purposes, it does not detail the exact trades nor does it separate workers in heavy from workers in light industries. Therefore, in analysing the first 1,600 confirmed cases of pulmonary tuberculosis notified during 1941 we studied the classification of H. M. Vernon in his *Health in Relation to Occupation, 1939*. The advice of the officials of the Ministry of Labour was also sought, with the result that it was decided to rearrange Group VI of the above Occupation Table into three sections, namely:

Section A: Workers in heavy industries—general labourers, moulders, steel workers, riveters and platers, furnacemen and stokers, chemical workers;

Section B: Workers in medium-heavy industries—engineers and munition workers, machinists, turners, finishers, and fitters;

Section C: Workers in lighter industries—joiners and wood workers, paper workers, painters, workers engaged in the preparation of food, drink, and tobacco, textile and rubber workers;

and Group III (*a*) into two sections: (*x*) office workers, typists, clerks, draughtsmen, and telephonists; (*y*) shop employees, cleaners, and caretakers. Group II was subdivided into (*a*) housewives, and (*b*) domestic servants; while Groups I, IV, and V remain unchanged.

Each of the 1,600 patients investigated was carefully classified, and particulars were obtained of hours of work, overtime, A.R.P. or Home Guard duties, recreations, housing, contact infection, and time occupied in travelling to and from work. The travelling time varied a great deal, and could not satisfactorily be averaged. One remarkable feature was the large number who had to travel so far to work that they had to carry "pieces" (sandwiches) with them. This applied especially to workers in the heavy industries. The number who availed themselves of provided canteen facilities was found to be relatively small, the reasons given being that the catering in some of the canteens is monotonous and that the charges are often too high.

Of the 1,600 cases analysed, 470, or 28%, fell into Group VI (tradesmen, skilled workers, unskilled workers, and labourers), which was subdivided as above. Table VI illustrates the age and sex distribution of these cases according to the adopted subdivisions.

TABLE VI.—*Age and Sex Distribution of Group VI*

Section		Age Groups						
		-15	15–24	25–34	35–44	45–54	55+	Total
A	Heavy industries: Males ..	1	34	22	27	30	21	135
B	Medium-heavy industries: Males ..	—	40	18	20	17	8	103
	Females .	1	64	10	1	—	—	76
C	Lighter industries: Males ..	—	24	6	15	4	6	55
	Females ..	1	88	8	1	3	—	101

Hours of Employment

From Table VI it appears that the young adults of both sexes are chiefly involved, and that with an increase of age the number of cases of pulmonary tuberculosis diminishes; but in the heavy industries there is a more even distribution of cases throughout the age groups. It was decided to subdivide the above sections into various working periods for comparative purposes. The results are shown in Table VII, in which are also included the working hours of clerical and shop employees, based upon statements made by the patients. The Labour Exchange has so far been unable to provide detailed figures of the number of persons employed in the different industries in Glasgow: it is unlikely that this information will be available for some considerable time. In any case, a really accurate estimate showing the interrelationship of occupation and pulmonary tuberculosis would demand a wider survey, as many persons who work in Glasgow live in the county areas, while considerable numbers of county workers live within the city.

TABLE VII.—*Distribution of Workers according to Hours of Employment*

	Average Number of Hours per Week				
	40–48	48–56	56–64	65–72	72+
Section A:	%	%	%	%	%
Males	—	20	26	18	36
Section B:					
Males	17	13	43	17	10
Females	14	46	31	9	—
Section C:					
Males	19	38	38	5	—
Females	35	45	14	6	—
Clerical Workers:					
Males	29	32	39	—	—
Females	78	15	7	—	—
Shop Employees:					
Males	48	24	18	10	—
Females	56	24	14	6	—

The first noticeable fact shown by Table VII is the percentage of those working longer hours among the industrial sections. In fact, 36% of those employed in the heavy industries were working over 72 hours a week, which could not possibly be conducive to good health, combined as it so often was with long periods of travelling and carried meals. It is noteworthy that four-fifths of the women employed in clerical work did

not exceed a 48-hour week, contrasted with the low figure of 14% for machinists and munition workers. It will be seen that the advice given in the 25th Report from the Select Committee on National Expenditure (Session 1940-1) has been largely ignored. In that report (page 4) hours of work are dealt with and recommendations made. Paragraph V reads as follows: "The investigations already carried out by the Board indicate that over an extended period weekly hours of work should not exceed 60 for men and 55 for women." Applying these standards to Table VII, the percentage of workers in each group exceeding these figures can be tabulated as follows:

	Males	Females
Section A	67	—
Section B	48	40
Section C	24	20
Clerical workers	19	7
Shop employees	19	20

The subdivision of the commercial class, Group III (*a*), showed that 60% could be grouped under Section (*y*) (shop employees, etc.) and 40% under Section (*x*) (office workers, etc.). The conditions of employment and the risk of developing pulmonary tuberculosis in these two sections appear to be very similar. The proportion who were able to return home for their meals showed no appreciable difference, nor was there any distinction between the average housing and sleeping accommodation. The subdivision of the domestic class provided the following information: that 85% of the recorded cases were those of housewives and 15% domestic servants; that the illness of 10% of the married women showed a definite time-relation to pregnancy; and that 55 (20%) of the 270 cases recorded in the group were contacts with tuberculosis in the home.

Scholars and Pre-school Children

It is difficult to ascertain to what extent the number of pre-school children and scholars in Glasgow has diminished owing to evacuation during the year under review; but the number has certainly not increased, yet the number of children affected by tuberculosis has risen by over 32%. Our investigations showed that of the notified cases 24% had been contacts with open tuberculosis within the past five years, as against 18% in 1940 and 14% in 1939. Definite contact history was found in 66 of the 258 pre-school children and scholars notified, and it is possible this increase has arisen from the necessity for keeping chronic cases of phthisis at home owing to shortage of hospital beds. It is significant that, although the number of cases of pulmonary tuberculosis in this group has increased by 32% since 1938-9, there is an increase of 90% in the cases showing definite contact with previous open tuberculosis within the past five years.

Summary and Conclusions

Our previous study of tuberculosis in Glasgow dealt with the increased incidence of the disease from the outbreak of war up to the end of 1940. It was found that the main increase involved the age groups 15–45 in males and 15–35 in females, the rise being attributed to war conditions, such as long hours, overwork, strain, and curtailed rest.

The present study carries these observations further. It compares the returns for 1941 with those of 1940 and 1938-9. It also includes the results of a detailed investigation into the occupations and working hours of the first 1,600 confirmed cases of pulmonary tuberculosis notified during the year.

The number of notified cases of pulmonary tuberculosis in Glasgow among the young adult cases of both sexes still remains high, but the rate of increase during 1941 has slowed down considerably. On the other hand, the under-15 age groups of both sexes have revealed a very real increase, as has the over-45 age group in males.

The increase among young people of both sexes under 15 years of age is partly accounted for by an increased proportion of home contacts.

Our contention that overwork and long hours are playing a major part in the increased number of recorded cases since the war is supported by the facts embodied in Tables VI and VII, one of the outstanding features of which is that little increase has occurred among the commercial and professional classes, whose hours of work alone remain within reasonable limits. It will be observed that, whereas less than 20% of the commercial class exceed the recommended maximum hours of work, 67% of the workers in heavy industries and well over 40% in the medium-heavy industries are working in excess of these standards.

The increase in the domestic class may be accounted for by war strain and the fatigue caused by standing in food queues in all weathers. Inquiry shows that nearly 40% of the housewives notified during 1941 were employed in part-time war work in addition to their household duties. This is a new feature, entirely associated with war conditions, which, in our opinion, may account for the increased number of cases in this group.

ACTION OF PHOLEDRINE AND NEOSYNEPHRIN IN RAISING THE BLOOD PRESSURE

BY

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AND

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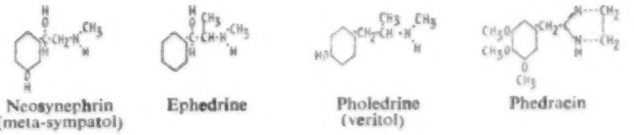
The use of substances having an action like that of ephedrine for raising the blood pressure still remains limited. Although ephedrine is sometimes injected when a spinal anaesthetic is employed, patients in collapse are ordinarily treated with nikethamide (coramine) or leptazol (cardiazol). Both are medullary stimulants and have no direct action on the heart. There is evidence that in animals they partly restore the blood pressure after previous depression with barbiturate. The effects are, however, seldom definite, and the doses necessary are very large indeed, being almost as great for a cat as the full therapeutic dose recommended for a man. The ability to improve the circulation is presumably due to stimulation of the vasomotor centre, causing vasoconstriction, some rise in blood pressure, and in consequence improved coronary flow.

If the chief effect desired is a rise in blood pressure, a substance which acts *directly* on the heart and blood vessels is clearly preferable. The more widely known agents which act in this way are ephedrine and pholedrine. Two other examples of such compounds on the market are neosynephrin (metasympatol) and phedracin.

The formulae of these substances are as follows:



Neosynephrin (meta-sympatol) — Ephedrine — Pholedrine (veritol) — Phedracin

The properties of ephedrine are well known. Neosynephrin is practically unknown in this country, although it has been employed in America by a number of clinical workers, who find it greatly superior to ephedrine (Bittrich, 1939; Brunner and de Takats, 1939; Johnson, 1937; Lorhan and Oliverio, 1938; Lorhan and Lalich, 1940). In 1938 Jones and Wilson reported on the action of phedracin. They suggested at the time that it might be of use in spinal anaesthesia. Pholedrine (veritol), which was introduced in Germany by Rein (1937a, 1937b), has received only slight attention from clinicians in Great Britain. The many German publications on the clinical use of this compound are in general very favourable, and in this country Dodd (Dodd and Merton, 1939; Dodd, 1942) has recently published the results of its successful clinical use. He recommends that pholedrine, like all other pressor agents, should be used with circumspection and only when absolutely necessary. He employs 4 to 5 mg. intravenously and reports no untoward effects with this dose. Schoenewald, Schweitzer,

and Steel (1940) found that in cats large doses (10 mg.) caused cardiac disturbances; small doses (0.2 mg.) had variable effects when the blood pressure was normal.

Experimental Investigation

We have compared these four sympathomimetic compounds, under standard conditions in animals with a depressed blood pressure, with the following results:

1. *Effect on the Blood Pressure.*—For each substance a series of five cats was employed; the animals received intravenous chloralose (0.08 g./kg.). The blood pressure was recorded from the carotid artery and enough nembutal was given to depress it to about 55 mm. Hg. Artificial respiration was applied throughout and the injections of the pressor agents were made intravenously at approximately hourly intervals. Doses which had previously been found to cause equal rises in blood pressure

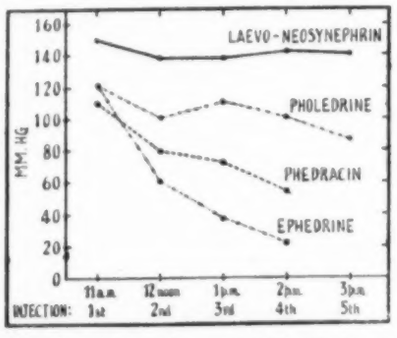


FIG. 1.—Showing the maximum height of the rise in blood pressure produced by successive injections of the four compounds given at hourly intervals. (Ordinate: mm. Hg above the initial level. Abscissa: Time.)

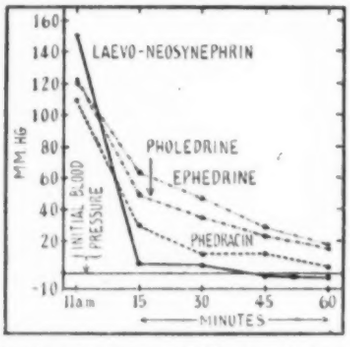


FIG. 2.—Showing the rate at which the blood pressure returns to its initial level after the peak of the first response. (Ordinate: mm. Hg above the initial level. Abscissa: Time.)

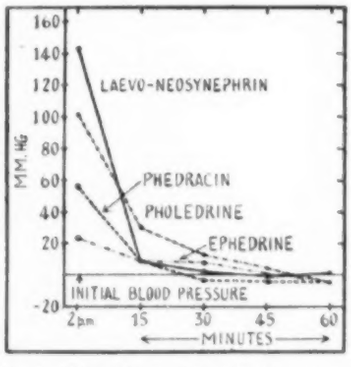


FIG. 3.—Showing the effect on the blood pressure of the fourth injection. Note the severe loss of activity of ephedrine and phedracin when comparing the peak of the response with that of the first injection, shown in Fig. 2. (Ordinate: mm. Hg above the initial level. Abscissa: Time.)

were used. They were: ephedrine hydrochloride 1.01 mg./kg., pholedrine sulphate 0.29 mg./kg., laevo-neosynephrin hydrochloride 0.05 mg./kg., and phedracin hydrochloride 0.79 mg./kg. Under these conditions the blood-pressure responses of the five cats could be expressed as averages in each series; the results are shown in Figs. 1 to 3. Ephedrine and pholedrine caused the most prolonged rise in blood pressure (Fig. 2), the response to the first dose of each substance lasting for about 45 minutes. Phedracin was briefer in its action (25 minutes), the effect of neosynephrin being the shortest of all (15 minutes). In such a preparation the response to an equivalent rise in blood pressure due to adrenaline does not last longer than about 4 minutes.

Although the result of the first dose of ephedrine was satisfactory, we were never able to see an equivalent effect again in the same preparation, for invariably both the height and the duration of the blood-pressure response to subsequent doses were rapidly and progressively diminished (Figs. 1 and 3). We noticed exactly the same process upon injecting phedracin. However, the response to pholedrine over the first four injections showed little change, and the response to neosynephrin remained constant throughout.

2. *Action on the Heart and Blood Vessels.*—We also compared the action of equipressor doses of these substances on perfused vessel preparations (the rabbit's ear and the dog's hind limb) and on the isolated cat heart perfused through its coronary vessels (Langendorff method). We obtained the following results:

(i) Ephedrine and pholedrine act predominantly on the heart, whereas phedracin acts upon the vessels and neosynephrin upon both the heart and the vessels.

(ii) Ephedrine and pholedrine cause an increase in heart rate (55% and 45% respectively); neosynephrin does not.

(iii) In the experiments on the isolated vessels a regular vasoconstriction was produced by neosynephrin and phedracin. An effect was not always to be seen with ephedrine and pholedrine; a relatively higher dose was required to produce it, and the effect, when it did occur, was prolonged.

These last results are of use in determining the possibility of substituting these substances for adrenaline in local anaesthesia. We investigated the subject by injecting mixtures of procaine and these four compounds into the flank of young guinea-pigs—anaesthesia being tested by the absence of skin reflexes to pin-prick. In the short series which we carried out we did not find ephedrine, pholedrine, or phedracin to be of value. On the other hand, anaesthesia could be prolonged with neosynephrin to within 25% of the duration resulting with adrenaline. These results substantiate the suggestions of others (Tainter and Stockton, 1933; Henderson, 1940) that neosynephrin might find use in local anaesthesia, for it possesses the advantages of being a substance which remains stable in solution and which may be sterilized by heat.

Discussion

The therapeutic usage of a pressor substance depends in theory upon several factors, among which the following may be considered: (1) the mechanism of the pressor response—namely, whether it is produced by action upon the heart or upon the vessels; (2) the effectiveness of repeated doses; (3) the duration of the pressor response; (4) the existence of any unpleasant side-reactions.

Ephedrine acts mainly upon the heart, but its stimulant action is so violent as to render it potentially dangerous in all conditions in which the heart is not entirely healthy. In animal experiments it soon loses its activity when injected repeatedly, and a reduction occurs in the duration as well as in the height of the pressor response. The routine administration of ephedrine before the injection of a spinal anaesthetic has clearly little to recommend it, especially as an attempted increase in blood pressure above the normal is often the cause of cardiac arrhythmia. The administration of ephedrine very frequently inflicts great subjective discomfort on the patient, and upon these grounds too its use should be carefully controlled.

Pholedrine also exerts its pressor effects through powerful cardiac stimulation, though compared with ephedrine it is less often responsible for irregularities of the heart-beat. When given repeatedly it loses its activity far less rapidly than does ephedrine. The side-effects resulting from its injection into human beings in reasonable doses (4 to 5 mg. i.v.—maximum of 20 mg. i.m.) are slight.

Neosynephrin acts upon both heart and vessels in an extremely favourable ratio. It improves the filling of the heart, it adds to the strength of the beat, and while increasing the heart output often causes slight bradycardia. Though it shows a relatively brief action after intravenous injection into an animal, yet when given intramuscularly, as it very frequently is under clinical conditions, its length of action (30 to 40 minutes) is not greatly different from that of ephedrine or pholedrine (40 to 60 minutes) by the same route. It may be injected repeatedly with no loss of activity. After the administration of neosynephrin the patient rarely complains of even slight discomfort.

Phedracin appears to act almost entirely upon the vessels. It loses its pressor action upon repetition and, like ephedrine, its length of action is reduced. Owing to severe constriction of the skin vessels it may produce an unpleasant feeling of tightness.

Summary

The importance of using a substance which acts directly upon the cardiovascular system, when it is desired to restore a low blood pressure, is stressed.

Pholedrine, neosynephrin, and phedracin are compared with ephedrine in a series of animal experiments.

It is suggested that neosynephrin as well as pholedrine should be adopted clinically as a substitute for ephedrine.

The results obtained with phedracin do not favour its possible therapeutic use, although it might with advantage be given a further clinical trial.

Neosynephrin may be of value as an alternative to adrenaline in local anaesthetic preparations.

We wish to express our indebtedness to Prof. J. H. Burn for his constant help and encouragement.

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A DEPRESSION–HYPOSEXUAL–ALOPECIA SYNDROME

BY

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Some years ago one of us (C. A.) treated a case of complete alopecia in a man of middle age. This man complained of deep depression, with very marked hypochondriacal trends, accompanied by absolute loss of sexual interest. The alopecia was complete and all hair-bearing areas were denuded, so that it was impossible to find any remaining hair. The lack of sexual interest occurred synchronously with the fall of hair, and the patient not only was impotent but showed no interest in his wife or other women. Nor had he developed any abnormal form of sexual interest. This case progressed in spite of treatment, and when last heard of the patient had entered a mental hospital, as his depression had become severe enough for him to contemplate suicide. (Unfortunately, owing to the exigencies of the war, his notes are not available to us, nor is it possible to follow up his case.)

Record of a Recent Case

The present case is that of a man aged 33. He came from a normal family. His father died at the age of 64 from a perforated gastric ulcer, and still retained his hair at that age. His mother is still alive, is healthy, and has normal hair. She suffers from occasional attacks of migraine, but has no other symptoms of illness. He has five brothers; one died from a gastric ulcer, and another was operated on for the same reason. (One might suspect from this, and the fact that the patient also has gastric symptoms, that the family is an anxious one and that emotional disturbances tend to cause malfunction of the intestinal tract.) He had five sisters, but one died from pneumonia and one was murdered by her husband. The patient himself has had little other than the usual children's illnesses, except that he has suffered from typical migraine ever since he can remember: his eyes "half black out," then he sees bright lights and zigzags, and finally develops a severe headache which ends with nausea and sometimes actual vomiting. After the attack his head feels sore, but there is a general sense of well-being.

The patient was called up in November, 1940, and joined the R.A.F. He felt well and passed Grade I. A week later he was vaccinated, and seems to have reacted allergically to this. The first night he felt very chilled and his arm was excessively painful. He was faint next day and noticed that both arms had swollen—the oedema reaching down to his hands. He reported sick; but his condition was evidently not considered serious, and his arm was merely re-dressed. Then he complained of a sore throat and feelings of general malaise. This lasted about 14 days and then gradually passed away, although he never felt as well as he had done before. At the beginning of January, 1941, the hairdresser drew attention to a small area on the vertex of the head where there was no hair, and about the same time he himself noticed that there was a diminution of his sexual interest. Eleven weeks after the vaccination he attempted intercourse, but although he had been sexually deprived for some time he had an excessively delayed orgasm—so much so that his wife commented on it. He did not feel depressed at that period. With the passage of time the baldness developed in a patchy way, mainly over the posterior of his scalp. It then spread to the sides, and over the frontal regions the hair grew more and more sparse. He became quite bald. His eyebrows disappeared and he noticed large bare areas on his face, starting on each side of the chin and slowly spreading all over the lower face to coalesce with glabrous areas on the opposite side. This became so pronounced that he had to shave only once weekly instead of twice, as was his custom. The hair on his chest dropped out and a large amount of the pubic hair disappeared also. (This was mainly over the "male" abdominal distribution.) The only area unchanged appears to have been the axillary hair, none of which seems to have been affected even at the worst period. Simultaneously with the appearance of the extensive alopecia he felt depressed. That this was not the result of brooding on his condition but was related to his general feeling of malaise is shown by the fact that he stated definitely: "I felt depressed because I felt ill."

By June, 1941, he had reached the climax of his condition: his hair was absent except in the axillae, he was extremely hypochondriacal, was depressed, and was devoid of all sexual feeling. At this time he had an attack of abdominal pain, which he described as heartburn, but for which no organic cause was discovered. His sleep was poor and he ate little. He was transferred to an R.A.F. hospital in August, 1941, and has slowly improved since then. He was allowed home on short leave at intervals during September, October, and November, 1941. He felt little sexual desire with his wife, and when he did attempt intercourse—he felt he should do so to "prove his manhood"—his orgasm was delayed. The depression was sufficient to make him weep frequently, and he was unable to concentrate on anything. He could not write letters, and eight holes at golf exhausted him. He became excessively worried over his condition and has remained anxious about it ever since.

The condition appears to have followed his vaccination, but psychological factors may be important also—these being the fact that he was in some financial difficulty when he was conscripted into the R.A.F. and while away from home his wife developed a trivial meatal boil; but he was given a wrong idea of her state, and seems to have thought she was in danger of her life. Curiously enough, during his illness he suffered less from migraine than usual, having only three attacks during the whole of his service in the R.A.F.

In February, 1942, this man was still suffering from considerable alopecia and depression, and, as it was considered

that it might be another year before he recovered, he was invalided, since it was unlikely that he would be of much value to the Service during this period.

Laboratory Investigations.—The patient's urinary male-sterone excretion was found to be 10.6 mg. a day, which is within normal limits. It is felt that this may not be significant either way, since he is now definitely recovering. The Wassermann reaction was negative.

Discussion

It appears to us that this patient is suffering from a syndrome, and since similar cases exist it is possible that it has not been recorded owing partly to the rarity of such extensive alopecia and partly because such cases fall into the hands of dermatologists who are not particularly interested in the concomitant psychological symptoms. The syndrome we would suggest consists of (1) wide-spread or complete alopecia; (2) depression with strong hypochondriacal features; and (3) diminution or complete lack of sexual desire, together with (4) diminished or absent capacity to fulfil the sexual act.

Alopecia.—The alopecia itself presents several problems. Is it directly dependent on the nerve supply or is it an endocrine deficiency which causes the fall? The distribution of the bald patches is not markedly symmetrical, so the suggestion is that the cause is endocrine rather than nervous. Again, there is no pattern suggestive of nerve or root distribution. Moreover, the delay between the causal factor and the onset of the loss of hair suggests an endocrine rather than a nervous mechanism at work. If it is an endocrine matter, then it would seem that there must be two endocrines—one which causes the growth of ordinary hair and one which stimulates the growth of sexual hair. The work of Broster and his collaborators (1938) on adrenal virilism has thrown considerable light on the endocrine factor—the adrenal cortex—and its relation to sexual hair. It seems probable, although there is no proof, that both hormones originate in the adrenal and complete alopecia is due to absence or diminution of them. The actual cause of the glandular damage, whether psychogenic or toxic, must be purely speculative. There is considerable evidence for the toxic origin. The amount of reaction evoked by vaccination, the loss of the feeling of well-being, and the fact that it is well known that alopecia commonly follows acute specific fevers, particularly if pyrexial, all suggest a toxic factor at work. On the other hand, there is the fact that this patient was in financial straits and was very anxious regarding his wife's health before he became ill. There are several well-authenticated cases in which anxiety has caused a fall of hair. For example, Spiegler (1918) recorded a case of a soldier who lost all his hair following the explosion of a shell close by him. Similarly, Pusey (1928) noted the loss of hair ten days after an emotional shock. Stern (1922) has suggested that the fall of hair is the extremity of the process which usually appears as greying of the hair. He, too, recorded alopecia following psychic trauma—the excitement of a barrage. Hurst (1940) describes cases of sudden greying of the hair within a week of strong emotional strain due to wartime experiences, also of permanent erection of the hair on the scalp and body, but does not appear to have seen any cases of alopecia.

Loss of Sexual Feeling and Power.—This lowering of sexual feeling and ability to carry out the act is very suggestive of endocrine disease. The attempts made by our patient seem to have had their origin in a psychic effort rather than a fundamental desire. It is a great pity that we were not able to arrange for investigation of his urinary male-sterone excretion during this time. On the other hand, he did not respond very strongly to injections of testoviron, so possibly the basic factor is a polyglandular one.

Depression.—The depression is accompanied by a heightened self-interest, which shows itself in hypochondriacal symptoms. The patient complains continually of his sad plight. He constantly draws attention to his terrible appearance and his miserable feelings. There is no retardation, and in neither of the cases seen has there been any delusional construction or hallucinosis. It might be tempting to explain the patient's reaction as a real response to his condition. There is no doubt that he does look bizarre with no hair or eyebrows, and he has some reason to complain and feel miserable. We would point out firmly that this is very unlikely to be the basic cause of his symptoms. We have seen pilots, air-gunners, and others who have suffered severe burns so that their faces were scarred and disfigured, but these men did not moan or complain. On the contrary, they were inclined to joke about themselves and were usually cheerful, although much more disfigured and more permanently scarred.

Prognosis.—The prognosis usually given by dermatologists is a hopeful one. Nevertheless the hair may take a year or even two before it grows again. Presumably the other symptoms also disappear with the reappearance of the hair, but we have had no opportunity of confirming this. That the prognosis is not always favourable is shown by the first case we saw. On the other hand, these cases must usually have a favourable termination, since wide experience in a number of mental hospitals has not brought us in contact with any further cases.

Treatment.—It would seem logical to treat these cases by psychotherapy, and this has been advocated by Hingston (1939), who claims favourable results. She also states that small doses of thyroid (1/2 to 2 g.) appear to have influenced the result. It seems more probable that testosterone propionate would be of value, but we are unaware of any really extensive and convincing experiments with it.

Conclusions

This combination of depression, alopecia, and lowered sexuality at once suggests some relationship, although doubtless a distant one, with Simmonds's disease. This illness, which is a polyglandular syndrome, is characterized by emaciation, anorexia, asthenia, precocious ageing, and general depression of glandular activity. It is usually accompanied by atrophy of the genitalia, cessation of the menses and sterility in women, and impotence and loss of sexual interest in men. There is in most cases a fall of the hair—so that the pubic and axillary hair may be absent. If the case is an early one the hair is found to be brittle and sparse. It is of interest to notice that Cahane and Cahane (1935, 1936) have described cases of diencephalic origin and suggested that these are related to Simmonds's disease. We feel that it would be unwise, on such slight clinical grounds as we possess, to make any suggestion as to the causation of the syndrome which we have described, except to point out its similarity to some of the other characteristics of endocrine disease and to suggest that it seems also to be of endocrine origin, although the cause of the damage to the glands is yet to be determined.

We have to thank Dr. Jocelyn Patterson for investigation of the sterone content of the patient's urine.

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The effect of acute loss of blood on normal persons has recently been investigated by R. V. Ebert, E. A. Stead, and J. G. Gibson (*Arch. intern. Med.*, 1941, **68**, 578). Between 760 and 1,220 c.cm. of blood was removed from each of 6 persons within 6 to 13 minutes; this was estimated to amount to from 15.5% to 19.7% of the total blood volume. Five out of six collapsed with weakness, nausea, blurred vision, sweating, and fall in blood pressure. Before the onset of collapse the pulse rate increased from 14 to 30 beats a minute, and at the height of the collapse the rate became slow (between 30 and 40 beats a minute). Restoration of the plasma volume began immediately after the bleeding and continued for the subsequent 72 hours, at the end of which it was approximately equal to the volume before bleeding. The authors observed that during the first two hours after venesection the increase of volume was contributed by a protein-poor fluid, so that there was decrease in the concentration of serum protein. After this, fluid and protein entered the blood stream simultaneously. At the end of 72 hours approximately one-quarter of the plasma protein was protein which had entered the blood stream after the bleeding. The proportions of the albumin and globulin fractions were unaltered. The authors conclude that loss of blood acted as a physiological stimulus to the production of normal protein.

THE INCIDENCE OF BREAST-FEEDING IN A SMALL MINING TOWN

BY

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This is a study of the incidence and duration of breast-feeding in Newbiggin-on-Sea, a small town on the coast of Northumberland, with a population of just over 9,000. The data have been obtained by interrogation of the mothers attending the infant welfare clinic. Since its establishment the clinic has been characterized by an absence of "class feeling," which may well be found even in a town of this type; and the friendly relations existing among the health visitors, midwives, and doctors of the town have resulted in an attendance in 1940 of 95.7% of the babies born there in that year, and living for at least six months.

Views concerning the Incidence of Lactation

A particularly interesting paper giving her own experiences of lactation and its difficulties is that of Dr. Lucy Naish (1913). In this she states that "weaning at or shortly after birth is very common among the well-to-do classes, and there are signs that it is spreading gradually to the less well-to-do." Spence (1938) quotes recent studies on the incidence of breast-feeding in Edinburgh, Newcastle, and other places, and reports a definite decline. Some of the findings quoted in his paper are included here, with the results of the present investigation. Robinson (1939) has studied the incidence of breast-feeding in Liverpool, using welfare clinic records over the period 1918-37. She, unlike Spence, came to the conclusion that there was no real decline in breast-feeding, but that there was a shortening of the period of lactation. Blessing (1937) has investigated the incidence of breast-feeding in a suburban metropolitan area in the U.S.A., all his patients being delivered in hospital. Only 38% of mothers breast-fed entirely to 1 month; all disliked "mixed feeding." He attributes the poor result to a system of divided control, in which the obstetrician took no responsibility for the child's feeding.

Present Investigation

The babies here studied are those born in 1940 of Newbiggin parents and continuing to live there till at least 6 months old. (This excludes 5 babies who died before the age of 6 months, the evacuee babies born elsewhere, and 12 babies whose mothers came to Newbiggin for the birth and moved away shortly afterwards.) The babies thus defined number 112—apart from these, 5 babies did not attend the clinic. The total is a small one, and does not justify generalities; any interest in this work lies in the fact that it is on 112 out of 117 possible attenders—i.e., 95.7% of the baby population of 1940; it is not considered "representative" of anything except this town in this year.

The population is mostly concerned with mining. An analysis of the fathers' occupation is as follows: Mining, 65; H.M. Forces, 12; traders, 9; fishermen, 8; labourers, 8; schoolmasters, 3; bus-drivers, 3; unemployed, 2; policeman, 1; professional footballer, 1; not known (illegitimate), 1. In this first full year of war wages approximated among the mining community to £3 a week; there was no real poverty, and no shortage of food. The Government scheme for cheap milk came into operation in August, 1940.

Most of the deliveries were by midwives. The figures are as follows: Doctors' cases, 13 (11.6%); hospital or nursing home, 13 (11.6%); midwives' cases, 86 (76.8%). Naturally the greatest number of babies were first children; the numbers of children related to their position in the family were: first children, 45; second, 35; third, 15; fourth, 8; fifth to eleventh, 9.

Data were obtained of the age at which weaning occurred; if it was preceded by a period of partial breast-feeding this was noted. Note was also made of the position of the child in the family and of how many previous children had been breast-fed, this term being used here to indicate "fed wholly on the breast to at least 3 months." (This figure was adopted to fall into line with Winternitz, quoted by Robinson.) Those mothers who weaned very early were asked whether they knew of any reason for this, and an analysis of their replies is given further on.

Results

The numbers were considered not to justify a very detailed analysis. The duration of breast-feeding is summarized in Table I.

TABLE I.—*Duration of Breast-feeding (112 Babies)*

Time	Complete Breast-feeding	Partial Breast-feeding	Weaned
Up to 2 weeks ..	67%	2%	31%
1 month	55%	2%	43%
3 months	32%	10%	57%
6 ,, ...	19%	9%	72%

This shows a very high percentage of early weanings. Spence (1938) states that in Newcastle (using figures derived from Princess Mary Maternity Hospital and from a middle-class nursing home) "satisfactory breast-feeding in the neonatal period is maintained only by three-quarters of the mothers"; but the Newbiggin figure is even lower.

In Table II is given a summary of some of the figures quoted by Spence (1938), together with some from Robinson, for comparison with the present work.

TABLE II.—*Percentage of Babies Wholly Breast-fed—Recent Investigations*

	Finlay (Edinb.), quoted by Spence (1938), 3,000 Cases (Home Visits)	Brewis, quoted by Spence (1938), Newcastle Municipal Welfares (1,326 Cases)	Robinson, Liverpool Welfare, 1937 (439 Cases)	This Work (112 Cases)
10th–14th day ..	87%	—	—	—
At 2 weeks ..	—	—	86%	67%
At 3rd mth. ..	—	58%	48%	32%
3rd–6th mth. ..	55%	—	—	—
At 6th mth. ..	—	34·7%	29%	19%
After 6th mth. ..	38·5%	—	—	—

Reasons given for Weaning before 2 Weeks

The proportion weaned (31%) was so high that the reasons for weaning were studied in some detail. Five of these 35 children were never put to the breast, on account of the mothers' serious illness. Two babies were very small twins, and breast-feeding was not attempted. One baby was weaned at 3 days because of the mother's sore nipple (hospital case). Six babies were either never put to the breast or no serious attempt was made to establish breast-feeding and they were "taken off" the breast when 1 to 4 days old; the usual explanation given was that "there was no milk." In two cases "breast abscess" and in one case "engorged breast" was given as a reason; and two at least of these three babies were stated to be "sleepy" or lazy feeders. In one case the mother had "too much milk," and had experienced such pain and trouble with a previous child that she made no attempt to breast-feed. She was a poor type of mother mentally, and was nervy and worried. Her husband was in a mental hospital, soon to be discharged, and she was upset about this.

In the remaining 17 cases the reason given was either that the baby was not gaining (and most mothers are very averse to giving, or are not encouraged to give, complementary feeds) or that, with getting up and about, the milk failed. Usually these two reasons were combined.

Feeding of Previous Children

Of the 35 babies weaned within two weeks, 18 were first children. It is interesting to know how the other (experienced) mothers had succeeded with previous children. In all, these 17 mothers with more than one child had reared between them 28 previous children. Only 6 of these had been breast-fed to at least 3 months: 22 had failed before this. (Of the 6 successfully breast-fed, 5 belonged to one large family of 11 children, the youngest of which was one of the 1940 babies.) Of the 1940 babies breast-fed to 3 months or more, 11 were first children and 26 were children of experienced mothers. These mothers had reared between them 44 previous children:

36 had been breast-fed to 3 months, 4 had failed, and of 4 no information was obtained.

The numbers are of course far too small for conclusions to be drawn, but they certainly tend to support one's ordinary observation that where a mother has managed to nurse one child she is likely to do so again. Thus breast-feeding of the first baby becomes even more important, in giving the mother experience and confidence.

Complementary Feeding

This is usually regarded as a step to be avoided if at all possible, as predisposing to rapid weaning. I have wondered, however, whether instruction in it may not help an anxious mother over a period of temporary shortage of breast milk. The knowledge that she can do this while her own supply is being improved may be very helpful, as, otherwise, a hungry crying baby may make her despair of feeding and lead to her weaning it immediately. I have therefore examined the clinic records to discover what evidence they afford of the value of complementary feeding in prolonging the total time of breast-feeding. The figures below refer to babies starting complementary bottle-feeding before the age of 6 months. The supplement advised was usually, to begin with, about 1/2 to 1 oz. of dried milk mixture, to be given at the end of some or all breast feeds. Breast-feeding was prolonged for *only 2 weeks* or less in 7 cases. It was prolonged for more than 2 weeks in 24 cases, 8 of whom were first babies. These 24 cases are analysed in Table III.

TABLE III

Case	Started Complementing at	Finally off Breast	Time Complemented
1	1 week	3 months	2 months 3 weeks
2	1 ,,	1 ,,	3 ,,
3	2 weeks	2 ,,	1 ,, 2 ,,
4	2 ,,	5 ,,	3 ,, 2 ,,
5	3 ,,	6 ,,	5 ,, 1 ,,
6	1 month	10 ,,	9 ,,
7	1 ,,	6½ ,,	5 ,, 2 ,,
8	1 ,,	2 ,,	1 ,,
9	5 weeks	4 ,,	2 ,, 3 ,,
10	6 ,, (pyloric stenosis operation)	9 ,,	7 ,, 2 ,,
11	2 months	4 ,,	2 ,,
12	2 ,,	5 ,,	3 ,,
13	2½ ,,	10 ,,	7 ,, 2 ,,
14	3 ,,	4 ,,	1 ,,
15	3 ,,	5 ,,	2 ,,
16	3 ,,	4 ,,	1 ,,
17	3 ,,	7 ,,	4 ,,
18	3 ,,	4 ,,	1 ,,
19	3 ,,	10 ,,	7 ,,
20	3½ ,,	10 ,,	6 ,, 2 ,,
21	3 ,,	4 ,,	1 ,,
22	4 ,,	6 ,,	2 ,,
23	4 ,,	6 ,,	2 ,,
24	5 ,,	7 ,,	2 ,,

Thus 8 babies were 1 week to 1 month old when supplements were started, and breast-feeding was prolonged for periods of from 3 weeks to 9 months; 4 babies from 5 weeks to 2 months old were enabled to continue for periods of from 2 to 7 months; 8 babies from 2 to 3 months old continued for periods of from 1 to 7 months.

On the whole, therefore, the results are encouraging, as in many of these cases (particularly those which continued for several months) the feeding was very largely on the breast, in some instances being practically re-established, the mother supplementing only when she realized that her own supply was inadequate. I have looked for the baby who "prefers the bottle to the breast," but found him only when the breast-milk supply was very poor or the mother inexperienced or unwilling.

Discussion

It is interesting to compare the results obtained by Pooler (1930), working in North Derbyshire with a population also largely concerned with coal-mining. From a detailed analysis of 100 cases of early weaning he finds that in 63% the primary cause of weaning is the return to domestic duties. In about half of these there are additional predisposing conditions—e.g., too frequent feeding, depressed nipples, etc. Spence (1938) says: "Probably the most important cause of failure to breast-feed among those who desire to do so is the temporary inhibition of lactation which occurs shortly after the lying-in period when the mother returns to her household duties."

Most of the Newbiggin mothers get up at the tenth day, and although the midwives continue to visit up to the fourteenth day many of the mothers have to plunge at once into full housework. Some of the fisherwomen, in addition, work at mending and setting the nets. It is too costly for many to arrange for extra help in the house after the two weeks; but, in any case, the importance of returning gradually to their normal duties is not sufficiently recognized by many mothers, one of whom, when urged to do so, said that "that would be behaving like an invalid."

Full details have been given of the 35 mothers who weaned in the first two weeks, as they formed nearly a third of the whole. For babies to be weaned at or before two weeks surely implies (except in the case of the mother's illness) either a very feeble will to nurse, or mismanagement, and sometimes results from the influence of friends and relatives, ignorance as to the value of small complementary feeds, or proper requirements of rest on getting up.

The midwife is often blamed for not seeing that breast-feeding is established; but, unlike the monthly nurse of the better-off classes, she is not in constant attendance on the mother. This ever-available support and advice is given by the grandmother or other female relative. (Sometimes the grandmother is anxious about some previous illness of her daughter's which she feels may recur with the strain of breast-feeding.) Most midwives are as keen as anyone to establish breast-feeding, but their one visit a day (after the third day) cannot replace the home atmosphere. Is enough care taken, one wonders, in educating the grandmother as well as the mother in the importance of breast-feeding, and of meeting the grandmother's doubts as to her daughter's fitness for this? The opinion of the senior midwife in the town was that many of the young mothers wanted to go to dances with their husbands, and so were not keen to establish breast-feeding.

Another point is that a young mother, especially with her first baby, becomes extremely anxious when it cries, and she is apt to attribute this to her own deficiency—"Not enough milk" or "Milk not doing any good"—an opinion that is often supported by her own mother. It is not easy to persuade her to persevere under these conditions, and, especially if the baby is not obviously gaining, she will turn with relief to a bottle and a box of food for which she feels she is not (psychologically) responsible.

Most of these mothers also firmly believe that it upsets the baby to complement, and that the two milks will not mix well at the same feed. Regurgitation of curdled milk is interpreted as a serious symptom: I have not met one mother who realized that "souring of the milk" was a natural and proper process. Education on this point might avoid many anxieties. It is probably this belief that leads often to the rapid weaning of a baby on complementary feeds; but the figures already given suggest that, with encouragement and advice, complementary feeding may be very valuable in prolonging lactation.

Summary

In a small mining town in Northumberland 31% of 112 babies born in 1940 were weaned before the age of 2 weeks; 57% were weaned by 3 months.

Reasons for early weaning are discussed. It is suggested that early return to domestic duties played an important part.

The anxieties both of the mother and of her home attendants need more attention and understanding in order to create a favourable environment for breast-feeding; this is specially important with the first child.

Complementary feeding has enabled lactation to be carried on for several months in some cases, and might be tried with more confidence in the neonatal period.

I am grateful to Dr. Tilley, acting medical officer of health, Northumberland, and to Dr. Jamieson, maternity and child welfare officer, Northumberland, for permission to publish these results. I also wish to thank Miss McDermott and Miss Weston, health visitors at Newbiggin, for their ready help and co-operation in the collection of the data.

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Medical Memoranda

Morbid Anatomy of Chronic Otitis Media

It is interesting to try to envisage the morbid anatomy of the temporal bones from the clinical data, radiographs, and other diagnostic aids. The more obvious abnormalities may prove mere palimpsests in the light of what is found at operation. The following 3 unilateral cases were among those chosen for conservative operation by the transmeatal route, with a view to providing better drainage and access for treatment.

Case 1.—The patient, aged 25, had been sent home from Gibraltar owing to otitis of ten years' standing. A small polypus protruded through an oblique perforation. Radiographs showed that pneumatization on the left side had been arrested in infancy (Figs. 1 and 2). At operation in November, 1941, a large infected cavity in the region of the mastoid antrum was evacuated; the rest of the bone was compact. The meatus was narrowed by osteophytes. At the end of December healing was in an advanced stage.

Case 2.—A sergeant aged 42 had been sent home from Iceland with a view to surgical treatment. He had had a perforation in Shrapnell's membrane for 15 years. At operation in August, 1941, a well-pneumatized temporal bone was found to have been invaded by a small cholesteatoma resembling a chamois-leather pocket, with foul green contents (Fig. 3). Within 8 weeks the ear was dry and healed and the hearing had much improved.

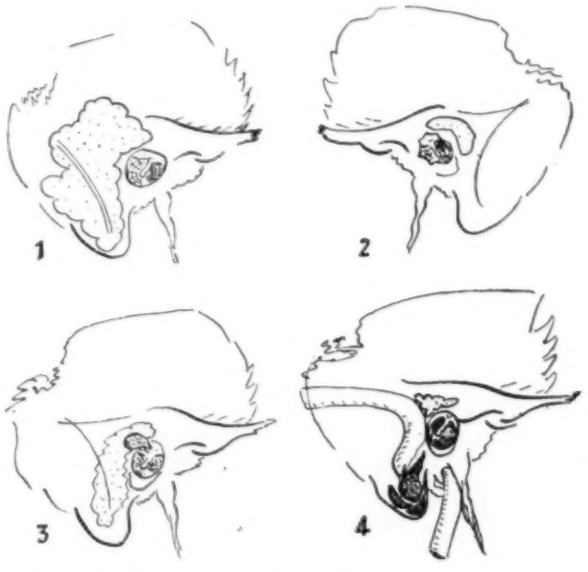

FIG. 1.—Case 1. Normal right side.
FIG. 2.—Case 1. Chronic empyema of left mastoid antrum.
FIG. 3.—Case 2. Cholesteatoma in attic.
FIG. 4.—Case 3. Retention cyst below knee of lateral sinus.

Case 3.—A man aged 35 had had otorrhoea for 30 years. There was an antero-inferior perforation, but with a probe a fissure was also detected in the posterior quadrant. An operation was performed in January, 1941. Within the cells at the tip of the mastoid, which were isolated by a prominent genu of the lateral sinus, was encysted fluid (Fig. 4). Suspended in the fluid were scintillating crystals (rectangular, with a corner missing) of cholesterin. The walls were of burnished bone, any lining membrane being invisible. The patient was subsequently passed A1 for the R.A.F. military police.

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J. M. Brookhart, F. L. Dey, and S. W. Ranson (*Endocrinology*, 1941, **28**, 561) observe that there is direct evidence for believing that the site of the erogenic action of the gonadal hormones is in the central nervous system. In experimental work on guinea-pigs they found that animals with lesions in the anterior part of the hypothalamus fail to show pro-oestrual or oestrual behaviour, and that such behaviour cannot be induced in them by the injection of ovarian hormones alone or in combination with pituitary hormones.

Reviews

IMMUNOLOGY OF PARASITIC INFECTIONS

Immunity against Animal Parasites. By James T. Culbertson, Assistant Professor of Bacteriology, College of Physicians and Surgeons, Columbia University. (Pp. 274. 36s. 6d.) New York: Columbia University Press; London: Oxford University Press.

Thirteen years have elapsed since the publication of Prof. Taliaferro's book entitled *The Immunology of Parasitic Infections.* The present volume of similar title may be regarded as a continuation of the first. In fact the author states in his introduction that he has taken Taliaferro's book as its point of departure, so much so that very few of the references quoted in the present volume antedate 1929. There is no doubt that Taliaferro's book, which collected in an authoritative manner a vast amount of scattered information on the subject of immunity to animal parasites, was followed by a great extension of researches in this field. It is chiefly with the results of these later investigations that the present volume deals.

The book is divided into three parts. Part I discusses natural resistance and acquired immunity and the general principles underlying these phenomena. Part II is devoted to the immunity to specific diseases, the most important of which is malaria. Part III considers applied immunity, the relation of immunological to morphological classification of parasites, and serological methods of diagnosis of infections.

Those who have followed the literature of the past ten or fifteen years will be well acquainted with the extent of that devoted to the immunological aspects of animal infections. Formerly the study of parasites was almost entirely morphological, but of late years these have given place very largely to immunological investigations, and it is with these that the author of this book deals so successfully that it is difficult to find fault with anything he has written. He has certainly given a most valuable review of the modern position of his subject, and immunologists and parasitologists alike will find Culbertson's *Immunity against Animal Parasites* an indispensable aid to their studies and future investigations.

ASPECTS OF GENETICS

New Paths in Genetics. By J. B. S. Haldane, F.R.S., Weldon Professor of Biometry in London University. (Pp. 206. 7s. 6d. net.) London: George Allen and Unwin. 1942.

Books that comprise a series of special lectures can seldom possess, unless very extensively rewritten, the characteristics of textbooks or monographs. They have more the nature of a commentary, choosing for particular attention those aspects of the subject which have interested the author and to which he has devoted his own researches. Prof. J. B. S. Haldane's book is based on lectures delivered in Holland in March, 1940. The preface shows that he seems to feel that some apology is now needed for confining the published account to certain aspects of genetics, for a relative dearth of references, and for dealing so largely with the work of himself and his associates. It is clear that the lectures have been prepared for publication under conditions of considerable strain. He says that he hurried to get them into book form, but that meanwhile "I was called upon to undertake researches for the British Government designed to save the lives of certain members of its armed Forces. This research not only occupied most of my time, but left me in a state of fairly extreme physical exhaustion, for the conditions which I was investigating were of such a character as to cause loss of consciousness and other serious symptoms." He also states: "I do not even know whether I shall enjoy life and liberty long enough to correct the proofs." Actually, few if any readers will feel that any apology is necessary and all will enjoy these fascinating essays on selected topics in the spirit in which they were no doubt welcomed as lectures.

After a general survey a detailed analysis is given of certain biochemical researches, notably those concerning the development of colours in flowers. The next essay deals with genetics and development and is based on Gruneberg's interesting analyses of the manifold and complex effects of certain genes in the mouse. The remainder of this small volume, nearly half in fact, is devoted to human genetics. In this field recent contributions from this country have been substantial and

important, and, if pride of place as regards basic theoretical advances must be awarded to the researches of R. A. Fisher, Haldane is easily first in ingenious and fruitful analyses of human data. A recent leading article in these columns[1] dealing with the sex chromosomes of man was largely concerned with his discoveries, and other contributions have formed the basis for several annotations.[2] Haldane in this volume discusses a number of these fascinating discoveries and speculations, and must be congratulated on his success in making some difficult topics comparatively simple to anyone with a knowledge of elementary genetics.

Minor criticism is not called for, but the remarkable statement on page 194 must surely be due to the compression into part of a single sentence of a doubtless complicated affair: "I have personally been fortunate in securing the advice, if not always the agreement, of his distinguished successor Prof. Fisher, until, as the result of a brutal assault by employees of University College, London, whilst attempting to enter his laboratory, he was compelled to leave London." Foreign readers will be numerous, and it is to be feared that some of them may form an exaggerated impression of the perils of English academic life.

DISEASES OF THE HEART

Diseases of the Heart, Described for Practitioners and Students. By Sir Thomas Lewis, M.D., F.R.S., F.R.C.P. Third edition. (Pp. 297. 15s.) London: Macmillan and Co. 1942.

Nine years have elapsed since the first publication of *Diseases of the Heart*, by Sir Thomas Lewis. During this period it has kept its place as one of the best, and perhaps the best, short treatises in English on heart disease. In this third edition the work is essentially in its original form, but a careful revision has been undertaken and such relevant advances in knowledge as might prove useful to practitioners have been incorporated. Cautiousness of statement, avoidance of theorizing and conjecture, and insistence on bedside as distinct from instrumental methods are still cardinal features of the work. While radiological and electrocardiographc methods are described in relation to their specific uses in particular maladies, no separate discussions of these methods have been undertaken. In the past decade the conception of left ventricular failure has developed and has undoubtedly contributed to a more complete understanding of heart failure; it is therefore rather surprising that this important principle has not here been more unreservedly recognized and more closely woven into the text. The chapter on effort syndrome is naturally of current interest; present-day problems of medical examination of recruits and conditions of military service which differ from those obtaining in the last war have reorientated ideas on this functional disturbance, and there can be no doubt that psychological rather than infective causes preponderate.

To the student, the practitioner, and indeed all who seek a lucid, logical, and practical exposition of cardiology, free from fads and fancies, this work by Sir Thomas Lewis cannot be too strongly recommended.

CALCULATION OF FOOD VALUES

Food Values in Shares and Weights. By Clara Mae Taylor, Ph.D., Assistant Professor of Nutrition, Teachers College, Columbia University. (Pp. 92. $1.50.) New York: The Macmillan Company. 1942.

The appearance of Dr. Clara Taylor's name as the sole editor of this book, which is intended to replace Rose and Taylor's *Food Values of Recipes in Shares and Vitamin Units*, comes as a melancholy reminder that in the recent death of Mary Swartz Rose not America only but all the civilized and scientific world lost one of its leading nutritional experts. Dr. Taylor has dedicated this book to the memory of her late colleague, and this serves further to emphasize the fact that in first proposing the "share system" for assessing diets Prof. Rose added an ingenious and extremely useful device to the many pieces of scientific research that constituted her contribution to the theory and practice of nutritional science.

The idea seems simple enough once someone had the ingenuity to think of it. You take the average requirements of the "average" individual for each essential nutrient, and divide them all by thirty. Each "share" so calculated then becomes the unit for dietary evaluation and planning. Every food will, according to its composition and the size of the portion, contribute a certain number of "shares" of its individual nutrients. These may be tabulated for all the foods under consideration, the nutrient shares totalled, and the results compared with requirements—obviously 30 shares of each nutrient for the "average" individual, but different amounts for others, according to sex, age, occupation, and so on.

Dietary analyses thus constructed are free of all units: ounces, grammes, pints, millilitres, microgrammes, international units all disappear, and calculations are made in terms of "shares" only. To this end Dr. Taylor's book gives, first, recommended daily allowances (in shares) of specific nutrients for men, women (non-pregnant, pregnant, and lactating), and children of various ages. Then come 33 pages of a table showing the "share" analyses of all the most important American foods, both raw and as prepared according to certain selected recipes, of which some details are given. A corresponding table of food values in weights occupies another 30 pages. There is much additional useful information in this book, which is of excellent appearance and handy shape, as well as some "specimen blank" pages ruled for the reader to use on his own diets. Practitioners would certainly derive much interest from reading this book, and still more from using its procedure and facilities to examine the diets of their own households; sometimes, possibly, the interest might be tinged with a little disquiet.

[1] *British Medical Journal*, 1941, **2**, 202.
[2] Ibid., 1940, **1**, 698; 1941, **1**, 562; 1941, **1**, 896; 1942, **1**, 420.

Notes on Books

Basic Concepts in Social Case Work, by HERBERT H. APTEKAR, is published in this country at 15s. 6d. by the Oxford University Press. It is a book for teachers and students of social case work and deals with the fundamental approaches to the subject with numerous illustrative examples. This may not prove of great interest or importance to medical readers except in so far as they ought to know something of the principles on which the social services ancillary to medicine work. Two important principles are insisted upon in this book which perhaps all social workers would do well to remember. First, the social worker has to mediate between the individual and the community with real responsibility to the latter, while the doctor, in his capacity of private practitioner at any rate, is more concerned with the former. Secondly, the social worker is concerned with the present situation and is not primarily concerned with causal factors. These are the province of the psychotherapist, and the social worker is not a psychotherapist.

Mrs. CLAIRE LOEWENFELD, in response to public demand, has prepared a set of printed leaflets on *Britain's Wild Larder*, giving practical directions on the gathering and preparation of wild plants, herbs, fruits, and berries, many of which are rich in vitamins and agreeable flavours. There are three leaflets under the general heading "Wild Plants and Herbs" (price 3d. each); three leaflets on "Wild Fruits and Berries" (price 2d. each); and a third edition of the author's earlier leaflet on the collection, preparation, and use of wild rose hips (price 2d.). The leaflets can be obtained at the leading London bookshops or by direct application to Mrs. Loewenfeld at Hedgerose, Buckland Common, near Tring, Herts. The whole set will be sent for 1s. 6d. post free; the postage on individual groups of leaflets is 1d.

Preparations and Appliances

WATER CHLORINATION OUTFIT

We have received from Pond's Extract Company, Ltd. (Perivale, Greenford, Middlesex), samples of their emergency outfit for water sterilization. A solution of sodium hypochlorite containing 2.5% of available chlorine is provided in glass ampoules, the usual size containing 5 c.cm., which is enough for 2 gallons of water. The ampoules being hermetically sealed, deterioration is prevented, and their tapering ends are easily snapped off when they are required for use. The outfit includes tablets of sodium hyposulphite for neutralizing the chlorine after disinfection in order to make the water palatable.

Boots Pure Drug Co., Ltd., have put on the market half-gramme tablets of sulphaguanidine, the new sulphonamide for treatment of bacillary dysentery and for prophylaxis before operations on the colon and rectum.

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COMPLACENCY IN ANAESTHESIA?

There are perhaps few subjects that lead to such energetic and informed discussion in our columns as anaesthesia. The shortest note, for example, on ether convulsions is followed by letters which far exceed in length the original communication. The high drama of bringing back to life by cardiac massage a patient who has died on the table inevitably evokes letters of praise and of criticism. In fact the recording by Mr. Hamilton Bailey of his unusual experience, and the subsequent interesting recital of his experience by Major John Nicholson, provoked Dr. John Elam to wonder whether anaesthetists were not getting too complacent in accepting with apparent equanimity a death rate on the table of between 1.3 and 1.8 per 1,000. He made what seems to be a useful suggestion —namely, that the Association of Anaesthetists might carry out an investigation into the relative safety of the various anaesthetics now used in general surgery and so lead to an assessment of their indications and contraindications. Later correspondents have renewed several old challenges. Dr. Massey Dawkins offered some slight correction to the view that complacency in anaesthetics may exist by giving his experiences of general anaesthesia carried out in the periods 1921-5 and 1931-5. In the first period deaths on the table amounted to 4.03 per 1,000, and in the second to 2.3 per 1,000. It is as well to remember that a death "off the table"—e.g., from subsequent lung complications —may also in part be the fault of the anaesthetist. But the part of the surgeon in such catastrophes must not be ignored: by faulty judgment in the choice of operation, by an operation entailing too severe a loss of blood, by heavy handling of viscera, he may be responsible for post-operative complications unjustly laid at the door of the anaesthetist.

But there is one theme that has recurred in this and other correspondence in our columns during the past few years—namely, that the standard of anaesthesia in this country as a whole is unsatisfactory. If this feeling is indeed widespread, then Dr. Elam need have no fears about complacency in the specialty which he combines with general practice. Indeed we may hope that complete satisfaction will never be reached, for such a state leads to stagnation of ideas and of effort. And the successful introduction of new techniques, new modifications of old techniques, new apparatus, new agents, all show that the specialty of anaesthesia is as alive to its opportunities and responsibilities as any other branch of medicine. The modern anaesthetist is indeed becoming conscious of the fact that his work is that of applied physiology, and it is, we believe, this change of attitude which has made both for advance in the subject and for the critical attitude towards it that has so healthily developed. The good is the enemy of the best, and if the level of the best is high and that of the good not always very, very good, then comparisons between different groups are apt, as Dogberry said, to become "odorous." No one can get away from the fact that experience teaches. It is inevitable that the occasional anaesthetist has come in for criticism, and that the whole-time anaesthetist seeking perfection in an imperfect world should wish all anaesthetics for conditions other than minor ones to be given by medical men with special experience or a special diploma.

We believe that all the wrongs there are in the situation can be traced to the fact that medical education has not kept pace with the innovations that have flooded medical practice during the past fifty years. The developments of modern anaesthesia and modern surgery have gone hand in hand, each aiding and abetting the other. The higher the art of the anaesthetist, the more bold can the surgeon be in his exploration of new fields; and the adventurous and imaginative surgeon inevitably stimulates his anaesthetic colleague to introduce new measures that will enlarge his scope. A medical student standing on the outer fringe of an admiring circle in the operating theatre must view the modern anaesthetist somewhat as the apprentice in the street used to view the mediaeval alchemist. If his lot is that of the bulk of the profession—namely, to become a general practitioner—it is unlikely that he will ever preside over the mysteries of the McKesson. In practice what he wants to know is how to use the rag and bottle, or mask and bottle, with safety and efficiency, and how to give a gas without making the patient purple. And, too, we would make the plea that he should thoroughly master the technique of giving the intravenous anaesthetics such as hexobarbitone. First and foremost the general practitioner needs to have a thorough working knowledge of anaesthesia for minor surgical procedures. Secondly, he should be fully acquainted with the snares and traps that beset the giving of anaesthetics in the old-fashioned way for the occasional major emergency. Only too often he has to learn the rudiments of the art when engaged in actual practice, and if, indeed, the standard of occasional anaesthesia is lower than it should be, then the blame must be distributed between those who teach this subject, those who draw up the curriculum, and those who conduct anaesthesia. Sooner or later a carefully thought out answer must be given to the question, "How far does medical education as at present carried on in the medical schools of this country prepare the student for work in general practice?"

The immediate problem, as we see it, is how to reconcile the ideals of the whole-time staff anaesthetists of this country, who are second to none in the world, with the need for grounding the embryo general practitioner in methods which most of the experts have abandoned as obsolete. All are agreed that the curriculum is overcrowded, and the student has little time to learn the simpler anaesthetic techniques which he will be called upon to practise in small cottage hospitals and in emergency work in humble homes or factories or camps or ships at sea. A nodding acquaintance with modern apparatus will not help him then. Mr. Cecil Hughes, in his letter printed on June 6, says that "the advent of 'machines' has undoubtedly led to a deterioration in the anaesthetic education of our students, a very large number of whom when qualified have probably never seen, let alone given, chloroform anaesthesia. If every student were taught to give a mask anaesthesia with C.E. mixture . . . he would certainly be more fitted for general practice, and for work in the smaller hospitals where these machines are not always available. . . . Chloroform has to be, and always will be, used at times for various reasons and circumstances, and it is deplorable that students should qualify without being used to its administration." It is too much to expect

the new graduate to be a competent anaesthetist, but elementary instruction in anaesthesia should never be regarded as a mere matter of getting signed up; teachers and examiners should insist on a minimum standard of knowledge upon which experience can build—*and the maximum amount of practice in the simpler methods.* But, whatever method of anaesthesia is taught or attempted, it remains true that any technique can be dangerous if the user is incompetent. This raises the question whether the general practitioner of only average anaesthetic experience is fully competent to anaesthetize patients requiring a major operation. The practitioner who is frank with himself will surely admit that his competence cannot be as great as that of the man who devotes himself exclusively, or at least largely, to mastering special techniques and acquiring detailed knowledge through special study and research. It is self-evident that the more perfect the anaesthesia the better will be the operating conditions for the surgeon; and a surgeon will always do better when he works with an anaesthetist who understands his ways and whose skill as an anaesthetist he fully trusts. The close relationship between surgeon and anaesthetist, a subject dealt with in an interesting article by N. A. Gillespie,[1] is of the highest importance to the object of this relationship—the proper treatment of the patient and his ultimate recovery. To this end everything else must be subordinated, although, human nature being what it is, "at some time or another," as Gillespie says, "we have all been guilty of allowing our personal pride to supplant the patient's interest." There is one aspect of this which has worried not a few surgeons and anaesthetists, and that is the occasional insistence of the general practitioner that he shall administer the anaesthetic to a private patient of his about to undergo a major operation. The surgeon who counter-insists that he must bring his own anaesthetist is unlikely to have his services called upon a second time, for obvious reasons. It is not suggested that such a point of disagreement between practitioner and surgeon is common, but at the same time it is useless to blink the fact or to evade it by soft words. The occasional anaesthetist in general practice must recognize his limitations, perfect himself in anaesthesia for minor conditions, and seek to employ a specialist anaesthetist for major and difficult operations just as he seeks to employ a surgeon with special skill to perform them.

As Gillespie brings out in his article, during recent years there has been a most fruitful revival of interest in, and original work on, anaesthesia. There is need, he says, for the keeping of records by anaesthetists, so that analysis of such records will enable them to give a more convincing answer to the usual question in the operating room, "Is he all right?" He argues that the anaesthetist with special knowledge should be used in diagnosis and treatment of post-operative complications; for example, his familiarity with the technique of intubating the respiratory passage enables him to treat atelectasis by suction drainage. The anaesthetist's work does not in fact begin and end in the theatre, but should begin and end at the bedside before and after operation.

Largely through the efforts of the Association of Anaesthetists in this country, the English Royal Colleges have instituted a diploma in anaesthetics, now rapidly becoming recognized as a necessary qualification for whole-time staff appointments. It is to be hoped that the examination for such a diploma will not become too theoretical, and will lay greater stress on practical knowledge, practical experience, and practical ability. The creation by Lord Nuffield of a Chair of Anaesthesia at Oxford has done much to raise the status of the specialty, and will no doubt bear increasing fruit in applied research.

[1] *J. Amer. med. Ass.*, 1942, **118**, 787.

APPLIED PSYCHOLOGY IN THE ARMY

It has become all too obvious these days that the waging of successful war is essentially a matter of applied science. Victory is likely to rest not so much with the big battalions as with the side that applies scientific knowledge and methods most thoroughly in all possible fields of endeavour. Nevertheless this does not mean that the individual has ceased to be important. On the contrary, he has become even more important. Successful war more than ever depends on the intelligence, initiative, and courage of the individual soldier.

Can science be applied in some way to the individual, and, more especially, can it be applied to the selection of leaders, who have the greatest responsibility of all? An attempt has been made by the British Army to answer this question in a very interesting and promising piece of work which has been under way for some time past. It was called into being partly as a means of reducing the wastage in officer training, as it was found that a certain proportion of those picked out for training failed to qualify for commissions, and the question arose whether the methods of selection for training purposes could be improved, saving thereby a considerable amount of time and effort. A refinement of this aim obviously consists in adopting methods, if they can be found, which will not only prevent failure but will choose the very best from the material available. The first unit for officer selection was established in Scotland and has now been working long enough to give that amount of confidence in the results which has justified the setting up of similar units in different parts of the country. The method consists in a study of the individual by a team of people consisting of psychiatrists, psychologists, and military testing officers, the latter being officers with military experience who live with the candidates during the three-day period of their residence at the unit, and who watch them perform a series of tests designed to elucidate their physical stamina, their behaviour in emergencies, and their ability to solve simple practical problems in the field. A central feature of the procedure is the psychiatric interview, which is designed to get a picture of the candidate's personality and leading traits of character and temperament. There is as yet no test or series of tests which will portray temperamental qualities in a more reliable way than the psychiatric biographical method. The psychiatrist's daily work consists so largely in the assessment of temperamental factors and resistance to stress, both internal and external, that he is well qualified to assess the probable reactions of the individual under war conditions. If the psychiatrist himself has had combatant military experience he is doubly equipped.

Intelligence testing is on a more systematic footing and is capable of application to a number of individuals at one time. Group testing of this sort is a routine at the unit, but the psychologists who are attached to it work all the time on possible improvements in method, and especially on tests which will throw light on some aspects of temperament; but such observations must always be dovetailed with the psychiatric survey, keeping the whole procedure essentially a clinical one. Each candidate spends between two and a half and three days at the unit, and the reports from the psychiatrists, psychologists, and military testing officers are collated at the end of that time and submitted to the president of the Board, who is a serving officer from a field unit, and in whose hands the ultimate decision lies.

The procedure thus briefly outlined has the effect, it is found, of giving a sense of satisfaction and fair play to the candidate for a commission. It aims very much at detecting fundamental qualities, independent more or less

of education and upbringing, and so has the advantage of giving the chance to show his true form to a young man who may have lacked educational opportunities but may possess qualities of leadership. There are already indications that, because the selection procedure is now apparently an exacting one, considerable prestige is attached to successful emergence from the ordeal. This cannot but have a good effect on morale, both on the officer himself, who knows he has passed such tests, and on the men under him, who know that he has been able to survive such a careful method of selection. There are promising indications, also, that the wastage in officer training may by this method be much reduced. Incidentally there is in this war-setting an anticipation of that principle of equality of opportunity which has been so much talked about with reference to post-war social legislation. Such efforts as are represented by this War Office experiment to introduce scientific method into the choice of officers are part of a pattern for the scientific organization of our fighting Forces. The Army Directorates responsible—the Directorate of Selection of Personnel and the Directorate of Army Psychiatry—will have the good wishes of everyone in their pioneer work in this direction.

MALARIA IN BRITAIN

An article in this issue by Prof. Warrington Yorke on malaria imported into this country in persons returning from service in endemic zones is particularly apposite at the present time. Such persons returning on leave to homes scattered throughout the British Isles may be taken ill suddenly with malaria, and in the absence of proper diagnosis and treatment are only too apt to die. Such a state of affairs should not obtain if the possibility, indeed probability, of malarial infection is adequately appreciated by the medical practitioners throughout the country. Under peacetime conditions, however, instruction on the disease to the undergraduate student was inadequate, because the condition was regarded as a strictly tropical entity. This view is at least open to grave objection in a maritime race; and, under conditions such as those which now obtain, it requires early amendment. It is gratifying to find that certain medical schools are taking steps to remedy an obvious defect by providing instruction on this and allied subjects for their students in the medical curriculum.

HYPERTENSION IN UNILATERAL RENAL DISEASE

It has been known for some years that unilateral renal disease may be found in patients, especially young persons, who have succumbed to hypertension. Such cases were occasionally mentioned before the work of Goldblatt,[1] and, later, that of Wilson and Byrom,[2] called attention again to the close relation between hypertension and kidney disease. This work, which has already been reviewed in these pages,[3] provided clinicians with the hope that cases might be found from time to time in which hypertension had been caused by disease in one kidney only and might therefore be amenable to cure by nephrectomy. The hope has been justified, and a number of cases have now been published in which nephrectomy has been followed by a return of the blood pressure to normal. The first successful case was that of Butler.[4] This was in a boy of 7 who developed unilateral pyelonephritis after removal of a renal calculus. The blood pressure gradually rose to 160/105, but returned to normal immediately after nephrectomy.

1 *J. exp. Med.*, 1934, **59**, 347.
2 *Lancet*, 1939, **1**, 136.
3 *British Medical Journal*, 1940, **1**, 138.
4 *J. clin. Invest.*, 1937, **16**, 889.

It is impossible in a short space to review all the cases which have now been published, and in any event they are difficult to classify. The most successful results have been obtained in children with hypertension, and the commonest cause has been some congenital abnormality of the kidney, with or without superadded infection. Much less satisfactory, as might be supposed, are cases occurring in elderly persons in which the aetiology of the hypertension is less certain and evidence of a completely normal kidney on the side not obviously diseased is less convincing. It is still difficult to decide what the indications for nephrectomy are. Abeshouse,[5] in a comprehensive but rather lengthy review, agrees with the criteria suggested by Schroeder and Fish—namely, that the hypertension should be of recent origin; that the renal lesion must be confined to one kidney; that the combined renal function must be normal; that retinitis should be absent; and that the hypertension must be persistent. These criteria are largely a matter of common sense, but a recent case published by Platt[6] shows that even in the presence of retinitis and papilloedema the operation may be justifiable, in fact life-saving.

So that the position may be clarified more exact observations are needed, and physicians and urologists should be on the alert. Every case of hypertension, especially in a young person, in which the aetiology is not obvious should have a thorough urological investigation. Conversely, the blood pressure should be taken in every urological case. Where persistent hypertension occurs with unilateral disease nephrectomy should be contemplated, not merely from the urological point of view but as a possible means of curing the hypertension.

ENDOCRINE FACTORS IN ACNE VULGARIS

Of late years the impression has become stronger that the aetiology of acne is more complicated than was formerly believed. Because the one undisputed fact about acne is that it makes its appearance almost invariably at about the age of puberty, the influence of the endocrine glands has been postulated by many as a factor in its aetiology. So common are an oily skin and acne in early adolescence that it has even been held that their presence is normal and their absence abnormal. The association between acne and puberty has naturally focused attention on the relation between acne and the sexual glands. Nevertheless, non-gonadal endocrines have also been incriminated by many observers. Dr. Lipman Cohen,[7] in a laborious and exhaustive review of the subject, concludes, firstly, that acne occurs with abnormal frequency in connexion with certain disorders of the endocrine system, such as tumours of the suprarenal cortex, and during the administration of androgens such as testosterone propionate. This has often been seen during its use for hypogonadism—but nevertheless certain authors recommend it as a treatment for acne. In an American prison 148 men were treated for acne by testicular implantation and 99 were said to have improved. But such opportunities rarely come the way of the dermatologist. Another factor often evoked to explain acne is a disturbed carbohydrate metabolism. But there seems to be little reason to believe that it is at all abnormal in acne, though Semon and Herrmann's results in the treatment of acne by injections of insulin are suggestive. Other disorders of metabolism which have been held responsible for acne in greater or less degree are changes in water metabolism, especially retention of water in the skin. The Suttons, father and son, describe acne as a "primary epidermal lipoidosis" and as a "pustular lipoidosis." The sheet anchor in their method of treatment is a low-fat diet, from which they claim excellent results. But another

5 *Surgery*, 1941, **9**, 942; **10**, 147.
6 *Proc. roy. Soc. Med.*, 1942, **35**, 317.
7 *Brit. J. Derm. Syph.*, 1941, **53**, 231, 269.

American dermatologist, Becker, advises a high-fat diet to compensate for the calories lost in the reduction of carbohydrates that he advises. The more one studies the literature of this subject the more difficult it becomes to draw any clear-cut conclusions. The only real argument in favour of an endocrine aetiology is the regularity of its appearance at puberty and its ebb and flow with the menses. As regards treatment, Stryker and Bloom very appositely point out that the majority of articles praising endocrine therapy deal with series of fewer than ten cases each, usually without any control series—and Lynch reports that he obtained an improvement in 64% of his controls. In fact, the uncritical nature of so many reports confers no credit on clinical investigation.

BIOLOGICAL VALUES OF BREADS

The biological value of a bread comprises its content of protein, carbohydrate, vitamins, and salts, and also its digestibility. Some of these factors can be determined chemically, some by experiments on animals; but some must be determined by experiments on human subjects. Murlin *et al.*,[1] by experiments on ten healthy male subjects, have lately compared three whole-wheat breads, one whole-wheat cereal biscuit, and three white breads for digestibility and biological value of proteins. They had six-day feeding periods, twenty-four-hour urine analyses on the last four days, and analysis of faeces in one lot for the full period. They found that the whole-wheat breads gave lower true digestibility values for the protein than the white but produced higher biological values. Making bread with "high vitamin" yeast or eating extra B-complex vitamins separately seemed to improve the biological value of the proteins. The apparent digestibility of carbohydrate and fat was the same whichever kind of bread was eaten. Thus the "indigestible residue" of the whole-wheat products did not, in this experiment, have the effect usually ascribed to it. Macrae *et al.*[2] have fed human subjects over a period of twelve days with a diet of bread (white, fine wholemeal, or coarse wholemeal), margarine, milk, marmalade jelly, and mild ale. During the last seven days, total energy, nitrogen, and fibre of the food consumed and of the faeces excreted were determined. The average net absorptions of the energy, nitrogen, and fibre of the white bread were 96.1, 91.0, and 65.8%, of the fine wholemeal bread 86.9, 85.3, and 14.0%, and of the coarser wholemeal bread 87.1, 85.7, and 9.7%, respectively. The intake of nitrogen per 100 g. wholemeal bread eaten was 2.91 g., and of white bread 2.7 g., but this advantage was neutralized by the larger amount of nitrogen in the faeces from the wholemeal bread. The degree of fineness to which the wholemeals were ground made no significant difference to the utilization of the energy or of the nitrogen they contained. Krebs and Mellanby[3] have found, also by experiments on human subjects, 94% utilization of calories and 89% digestibility of protein in wheatmeal bread of 85% extraction (the national wheatmeal bread). From a comparison of these with Macrae's figures they argue that the digestibility of both 75% extraction flour (white) and national wheatmeal is much greater and the differences between them much smaller than was assumed by Wright[4] when he put forward the opinion—"that the adoption of the wholemeal loaf would not result in any appreciable saving in the energy content of the nation's dietary, while it would cause a significant reduction in both the quantity and quality of protein available for human consumption." Kodicek[5] has concluded from various calculations that the eating of wholemeal bread instead of white bread, in conjunction with the average dietary available to-day, would raise the intake of nicotinic acid from the minimal requirement (8 to 10 mg. a day) to about 12.3 mg. Wheatmeal bread, he says, would be almost as effective. Thus, from the human standpoint, evidence is accumulating of the superiority of wheatmeal over white bread.

[1] *J. Nutrit.*, 1941, **22**, 573, 589.
[2] *Chem. & Ind.*, 1941, **60**, 723.
[3] *Lancet*, 1942, **1**, 319.
[4] *Chem. & Ind.*, 1941, **60**, 623.
[5] *Lancet*, 1942, **1**, 380.

FERTILITY STATISTICS

A very limited edition of Part II (Civil) of the Registrar-General's Review of England and Wales, 1938, has been printed for official use. The publication can be consulted at Somerset House or at Terra Nova, Lancaster Road, Southport. A few copies are available for temporary loan to approved persons having an acknowledged interest in vital statistics, and application should be made to the Southport office. The volume contains the usual tables of population, births, marriages, etc., but the principal interest is in the new feature—the first analysis of the information bearing upon the fertility of women in England and Wales, collected under the Population (Statistics) Act of 1938: the data relate to the second half of that year.

Almost one-third of the mothers of legitimate children during this period were aged 25–29, and nearly one-quarter were in each of the adjacent age groups 20–24 and 30–34. It is interesting to note that the intervals between marriage and the first birth in 1938 show that about 40% of women who married before 20 years of age must have been pregnant before marriage, about 30% of those who married at 20, about 20% of those who married at 21, and 8% of those marrying at 30–34. Half the mothers of illegitimate children were under 25. When the number of children born was related to the number of women in the various age groups, a rapid decline with increasing age was shown in the legitimate birth rate. At ages 15–19 the proportion of married women producing a child was one-half, at ages 20–24 the proportion was one-quarter, and in the 35–39 age group the rate had declined to one woman in twenty. The trend of the illegitimate birth rate, by ages of mother, did not decline continuously: the rate was highest at 25–29 years, but there was little change between ages 20 and 39. The first confinements formed 42% and the second 25% of the total confinements. Fertility in 1938 declined continuously as the duration of marriage increased from 0 to 10 years. Fertility immediately after marriage has declined since 1911, by one-third for women marrying at 20–26, and by one-quarter for those marrying at 27–30. Statistics of twins and triplets are given for the first time. One of every 42 children born was a twin, and one in every 3,873 a triplet. The risk of a confinement producing a multiple birth increases with age of mother up to ages 35–40, where it is a maximum. The report shows that the "adjusted net reproduction rate" was 0.84, or 16% below the necessary standard for reproducing the population. If an ultimate decline in the native-born population is to be averted an increase of 19% in the reproduction rate will have to take place. Discussing how this increase might be brought about, the Report states that in 1938 there were in this country 275,000 spinsters aged 40 to 44.

The Prime Minister of Turkey, Dr. Refik Saydam, who died suddenly at Istanbul on July 8, had made his name as a physician and personal medical adviser to Kemal Ataturk before entering political life as Minister of Health after the establishment of the Turkish Republic. He showed energy and great administrative skill in devising and carrying out hygienic measures. The health services of Turkey owe much to his statesmanship and creative vision.

NUTRITION OF EXPECTANT AND NURSING MOTHERS

A special committee set up by the People's League of Health in July, 1935, to investigate and consider the nutrition of expectant and nursing mothers in relation to maternal and infant mortality and morbidity has prepared an interim report of its research. This document is signed on behalf of the special committee by its chairman, Prof. James Young, by Dr. C. O. Hawthorne, chairman of council of the League, and by Dr. W. C. W. Nixon, medical secretary of the special committee. The report, with minor omissions, is printed below.

The committee has completed a survey which involved the study of the records of over 5,000 women and which it believes to be more comprehensive than any similar investigation previously carried out. The League has been fortunate in enlisting the co-operation of 10 London hospitals.

A Statistical Survey

The investigation was carried out from March, 1938, to the end of 1939, and involved the keeping of accurate records in the case of 5,022 women and the compilation of 324 statistical tables. This was rendered possible only by the generous and unstinted services of the staffs in the various hospitals and of the statistical member of the committee (Mr. W. T. Russell) and his assistants. The People's League of Health is indebted to three commercial firms—Vitamins Ltd., Crookes Laboratories, and Roche Products Ltd.—for free gifts of the vitamin and mineral elements required.

The main investigation was planned to show whether additions of the appropriate vitamins and minerals to the daily food would have a beneficial effect on the course of pregnancy and labour and on the newborn child. In order to obtain some information concerning the type of diet consumed by the group of women to be studied, an inquiry was carried out among expectant mothers attending four of the hospitals which collaborated in the test. Included among these patients were some of the women enrolled in the investigation. It was not found possible to make a detailed dietary survey, but nearly 1,000 women collaborated by filling in questionaries which gave a record of the food they had eaten during a week. It is recognized that this procedure was at best a rough-and-ready method of assessing food consumption, but there were good reasons for believing that it would give some evidence of the nutritional level of the women during the experimental period. Analysis of the records showed that, in general, there was no marked deficiency of first-class protein among any of the women answering the questionaries.* As regards minerals, a shortage of calcium was noted in about 70% of the women, most of whom were consuming insufficient milk and cheese. Iron deficiency was even more serious, only 2% having a satisfactory intake.

Vitamin and Mineral Deficiencies

The deficiency of vitamin A was the most common, this being anticipated from comparison with other pre-war data: rather more than half of the women were taking less than they required. Vitamin B_1 deficiency was not nearly so marked, and, generally speaking, the diets were not badly defective in this respect, but nearly half the women were not obtaining as much as was really desirable. Vitamin C shortage also affected about 50% of them, but once again the magnitude of the deficiency was not nearly so great as had been expected. The general impression was that the women were on the average better nourished than had been expected from a direct comparison of data derived from previous dietary surveys of comparable groups of the ordinary population. It was clear that in a number of cases they were following advice given at the ante-natal centres and that fresh fruit and eggs frequently entered into their daily diet. The same was true of milk. The women stated that they were taking these foods especially because they had been advised that the health of their babies would thereby be improved. There were, however, instances in which the dietaries were grossly defective.

The committee next decided upon the amounts of vitamins and minerals required to make up the deficiency in the above respects. The daily supplements used for the experiment were: Saccharated iron carbonate, 18 gr. (1.1 g.), equivalent to 0.26 g. ferrous iron; calcium lactate, 30 gr. (2 g.), equivalent to 0.26 g. calcium; minute quantities of iodine, manganese, and copper; adsorbate of vitamin B_1 containing all factors of the B complex B_1 content standardized at 200 international units per g.), 15 gr. (1 g.); vitamin C (ascorbic acid), 100 mg.; halibut-liver oil (vitamin A, 52,000 I.U. per g., and vitamin D, 2,500 I.U. per g.), 6 minims (0.36 g.).

In each hospital the women enrolled at the ante-natal clinic were divided into two main groups by placing them alternately on separate lists. The women in one group received the supplements, while those in the other were kept as controls. Within each of these groups the women were further classified into (1) women pregnant for the first time; (2) women with a history of one or more previous pregnancies. And again each of these two groups was subdivided into: (*a*) women under 25; (*b*) women between 25 and 30 years; and (*c*) women over 30 years. All women who were not in good health were at the outset excluded from the experiment, also women whose delivery was expected in less than 16 weeks.

The groups of important records thus obtained have been analysed by the statistical member of the committee and his assistants, but the extent of the material collected and the exigencies of the war have made it impossible for the committee to prepare a full report at present. In view, however, of the importance to the community of certain facts which have emerged it has been decided to issue this preliminary report.

Toxaemia of Pregnancy

At the start of the research it was decided to regard as toxaemic (*a*) cases which exhibited hypertension—a systolic blood pressure of or above 140 mm. Hg or a diastolic pressure of or above 90 mm. Hg—with or without albuminuria, oedema, etc., and (*b*) cases in which there was no hypertension and in which the diagnosis was based upon albuminuria.

In the 1,530 primigravidae who received the supplementary diet the toxaemia rate on the above standard was 27.1%, while in 1,512 primigravidae who did not receive the supplementary diet the rate was 31.7%—the difference being $4.6 \pm 1.7\%$. This result was due to the dominating influence of the statistical experience of women aged 25-30, in whom the difference was $7.7 \pm 2.6\%$. At the younger and older ages the difference, although still favouring the treated groups, was statistically unimportant. In multiparae there was no difference between the two groups, the incidence of toxaemia being 21.8% in both 980 treated and 999 controls.

Within recent years it has come to be recognized that a diagnosis of toxaemia cannot be based upon hypertension by itself, as this frequently connotes not a true or specific pregnancy toxaemia but an essential hypertension. The exclusion from the above groups of cases with hypertension as the sole clinical condition leaves those women in whom the diagnosis of toxaemia is based upon albuminuria, oedema, etc., with or without, but generally with, hypertension. This treatment of the figures may result in the exclusion of some cases in which the hypertensive state is due to toxaemia, but any such disadvantage is offset by the fact that, apart from any possible differential benefit derived from the supplementary diet in one group, each group is being similarly treated. It has the advantage of segregating for special study those cases in which the diagnosis of toxaemia rests on a reasonably secure foundation.

On this basis the primigravidae who received the additional dietary ingredients had an incidence of toxaemia of 5.4%, while in the primigravidae who did not receive any additional diet the percentage was 7.4. The difference and its standard error was 2.0 ± 0.9, which means that the odds are nearly 40 to 1 against such a result being obtained by mere chance. The figures were also favourable to the parous women, but not to a significant degree, the percentages being 3.6 and 5.2 respectively, the difference being 1.6 ± 0.9 (see Table). These results are striking, and indicate that the women receiving the special diet are protected against the risk of toxaemia in a ratio which is almost 30%. When it is remembered that, next to puerperal sepsis, toxaemia is the most important cause of the maternal death rate (about 20% of the total) in addition to being one of the most fertile sources of chronic ill-health after childbirth, the findings of the committee assume a significance which it is hardly possible to overestimate. This investigation has been

* It was not found practicable, owing to the restricted facilities available, fully to analyse in terms of calories, grammes of protein, units of vitamin, etc., the diet of the women whose food consumption was investigated. A scoring system was therefore adopted by which arbitrary values were given to express the daily consumption of the more important foodstuffs such as milk, butter, wholemeal bread, fresh vegetables, fatty fish, fruit, eggs, etc. By making a sum of the weekly score for appropriate foods, approximate estimates could be made of the intakes of first-class protein, vitamins, minerals, etc., while from a general summation was obtained a picture of the diet as a whole. This admittedly rough-and-ready procedure sufficed to reveal any marked deficiencies in the diet.

carried out in the London area, in which it is known that the incidence of toxaemia is low. A reduction of 1.8% has been obtained. If a similar reduction could be obtained for the whole country it is estimated that on the basis of the annual number of births—approximately 600,000 in the immediate pre-war years in England and Wales—there would be 10,000 fewer cases of toxaemia in the year.

In a further classification based upon the criteria generally accepted for "pre-eclampsia"—namely, hypertension with albuminuria, oedema, etc.—the following toxaemia rates were obtained: treated primigravidae 4.51%, untreated primigravidae 6.42%, the difference being 1.91±0.82; treated multiparae 3.16%, untreated multiparae 4.60%, the difference being 1.44±0.87 (see Table).

Pregnancy Toxaemia

	No. of Women	Hypertension only		Albuminuria with or without Hypertension		Hypertension with Albuminuria, etc. (Pre-eclampsia)	
		Cases	%	Cases	%	Cases	%
Primiparae:							
Treated	1,530	332	21·7	83	5·4	69	4·51
Controls	1,512	368	24·3	112	7·4	97	6·42
Difference (C–T)		2·6 ± 1·5		2·0 ± 0·9		1·91 ± 0·82	
Multiparae:							
Treated	980	179	18·3	35	3·6	31	3·16
Controls	999	166	16·6	52	5·2	46	4·60
Difference (C–T)		−1·7 ± 1·7		1·6 ± 0·9		1·44 ± 0·87	
Total	5,021	1,045		282		243	

The Infant

Prematurity.—The committee found evidence, which it regards as statistically significant, of benefit to the infant from the improved diet of the pregnant mother. It finds that the prospects of a woman carrying her child to term are improved by the diet. Thus, out of 1,529 primigravidae receiving additional diet, in 308, or 20.1±1.10%, the pregnancy ended prematurely (i.e., before the 40th week), while in 1,512 primigravidae who did not receive any addition prematurity occurred in 361, or 23.9±1.10%. The corresponding figures for the multiparae were almost exactly similar to those for the primigravidae—namely, 20.1±1.33 and 24.2±1.33. The differences in both instances are greater than mere chance fluctuations. This result—the relatively greater proportion of term deliveries among the treated women—is of importance, particularly in view of the fact that, according to the Registrar-General's statistics, 50% of infantile deaths under one month are due to prematurity.

Weight of Baby.—For primigravidae of all ages the difference is slight—7.18±0.03 lb. for the treated as against 7.17±0.03 lb. for the controls; but a similar comparison for age 30 and over reveals a wider range, the treated being 7.17±0.7 lb., as compared with 6.99±0.07 lb. in the babies of the control mothers. The difference here is 0.18 lb., which approaches significance. In the multiparae of all ages the difference between the birth weight is −0.07±0.05 lb., which is not significant; but the trend of the values favours the treated women, as in 3 out of the 4 age groups their babies were slightly the heavier.

There is evidence of a considerable difference in the average birth weights in different hospitals. In hospital B the mean value was 6.98 lb. for babies of primigravidae, as against 7.22 lb. and 7.42 lb. in hospitals G and J. The corresponding weights in the multiparae class were 7.43 lb., 7.62 lb., and 7.89 lb. The differences between these mean weights are statistically significant. These wide deviations in the average birth weight of babies born in different London hospitals raise questions which merit further investigation.

The committee could not find any evidence to support the view that the addition of the vitamin and mineral elements to the dietary affects in any appreciable degree the risk of the development of fever and sepsis after childbirth. Nor did it find any appreciable influence on the character and duration of labour.

Benefits of a Well-balanced Diet

In directing attention to the significant benefit both to mother and child of a well-balanced diet in the ante-natal period, the committee would at the same time emphasize some considerations which make it likely that in its nature the investigation could not be expected to discover the full extent of this benefit. The committee had to avoid the risk, peculiarly attendant on this class of investigation, that materials (vitamins and minerals) intended for the mother would be diverted from her diet and added to the general family stock. For this reason the substances were given in tablet and capsule form, and, as was to be expected, some women defaulted. It may further be urged that the full value of such protective substances can be realized only when they are given in the form of naturally occurring foods. For these reasons the committee feels that there is sound reason for the view that the results of the investigation, valuable and significant as they are, should be regarded as pointing to the minimal rather than to the maximum advantages to mother and child of a well-balanced maternal dietary. It should also be mentioned that the statistical results which have been obtained concerned women whose basic diet was in all probability somewhat better than that of similarly constituted groups of women at the present time.

This comprehensive and controlled investigation furnishes for the first time clear evidence on questions which have long been in dispute. In so far as the results demonstrate the influence of a well-regulated diet on the health of mothers and on the development and well-being of their infants, they are of great national importance. Further, this message is addressed to all sections of the community, for it is not solely among the poorer classes that defective nutrition is prevalent. At the same time, since poverty and malnutrition march hand in hand, and since the poorer classes are relatively the most fertile, it follows that the ravages of faulty maternal nourishment fall with tragic emphasis on the mothers in poor homes and on their children.

Correspondence

"Positive Health"

SIR,—The salutary and timely protest in your annotation (July 4, p. 16) that ability in one specialty does not necessarily confer ability to speak with authority in another—*vide* the Socialist Medical Association's resolution in favour of a "second front"—might equally be applied to the subject so pertinently raised by Mr. A. R. Jordan in his letter in the same issue (p. 22). Do not the medical profession, specialists in the care of the sick, act in the same manner when they pose as authorities on "positive health"? No doctor, the school medical service excepted, is in a position to study any section of the populace other than those who constitute themselves "patients." Sickness must come to the doctor before he is empowered to act; he must wait the patient's pleasure. How then can such experience qualify medical men to be experts on health or even on fitness?

In *Biologists in Search of Material* (Faber and Faber, 1938) we gave the results of complete overhaul, including laboratory, biochemical, and physical examinations, of the 1,530 individuals over 5 years of age comprised in 500 families. These results were as follows:

8% with acknowledged disease—i.e., aware of their disorders—receiving medical treatment;
24% with acknowledged disease *not* receiving medical treatment;
59% with disorders discoverable by us, but the presence of which was either ignored by or unknown to the individuals, and who were, therefore, also not under medical care;
9% without any disorder discernible by the examiner.

These families were taken from among those presumed to be a healthy populace. From these figures, which we have no reason to believe would vary to any great extent whatever sample of the normal public was chosen, it will be seen that the medical profession has a very long way to go before it has so organized its own activities as to bring the benefits of modern medical science to all those in need of them—namely, all the disordered. Not until this is done will the borderland between health and sickness bring them legitimately and naturally to the brink of the subject of health.

The fact that the majority of those with untreated disease are ambulatory "cases," though not necessarily of minor disorder, perhaps affords a partial explanation of how it is that they have not come within the cognizance of the medical profession. The man in the street is not such a fool as he looks. He knows that the hospitals and clinics have a "corner" in scientific instruments, without which he naturally, and perhaps rightly, presumes that the medical services cannot do justice to the nice demands of non-incapacitating disorder. But he also knows that the circumstances of organization of these

hospitals and clinics will almost inevitably immobilize him should he go near them. It is thus in some measure the intelligence of the man in the street which is keeping him from seeking the help that he believes modern medical science to hold for him. Only two things can put this right. One is to furnish the practitioner with the tools and instruments which as a student he has been trained to use. The other is to reorganize the setting of the hospital out-patient facilities and to sweep away the obsolete spirit of patronage in which they are offered.

Even these reforms will only touch the fringe of the problem of the treatment of disorder. Nothing but periodic overhaul can disclose the disorders of those unaware of their presence. Fifteen years of experience directed expressly to this subject has taught us, however, that periodic overhaul of those unaware of their disorders must essentially be in the nature of periodic *health* overhaul, not periodic *medical* overhaul—that is, it must primarily be directed to the assessment of the capacity of the individual for health rather than in the nature of a search for his disorders. Though by periodic medical overhaul we might eliminate the physical disorders of the individual, we should be running a serious danger of creating psychological disorders.

Our experience has shown us that for periodic overhaul to be of maximum and continuing value it must be: (1) overhaul of the family, not of the individual, who is but a "limb" of the family; (2) it must be accompanied by circumstances which enable the family, the individuals of which have had their disorders removed, to move out of the environment that has created these disorders into one in which they may live and function more fully—i.e., in health. For this reason, in 1935 the Pioneer Health Centre, to cater for 2,000 families, was opened as a full-scale experimental research into the nature and cultivation of health. I would claim with Mr. Jordan that it is only through the old methods of long, laborious, and completely unprejudiced research that "personal hygiene can be erected into something of a science."—I am, etc.,

INNES H. PEARSE, M.D.,
Co-Director, Pioneer Health Centre, Peckham.

Planning a Hospital Service

SIR,—For sound planning it is necessary to decide the primary interest for which service is needed and to allow this to determine the main form of the plan. All proposals will then be judged from the point of view of this primary interest: much discussion may be saved and confusion avoided thereby.

In the matter of hospital provision what is required is primarily a service which is adequate for the treatment of members of the community suffering from serious illness, and a system that will ensure, so far as possible, that wherever A and B go or are sent they will be offered the skill and care they need. The value of all proposals as to the form of the hospital service should be tested against this principal requirement; for example, the question when and where it may be in the public interest to maintain the distinction between "voluntary" hospitals and those controlled by public authorities.

The system of the future must perform certain secondary functions; it must, for example, provide facilities for medical education. The call for such secondary functions should not, however, determine the main structure of the system; everywhere the primary question should be, "What does the public need?" It is when attempts are made to put first what should come second that conflict and confusion come into the discussion. If special institutions are built or chosen with an eye, primarily, to providing conveniently placed medical academies, they may well fail to satisfy the fundamental need of a medical school—namely, a varied and extensive field for clinical instruction—unless the compulsory transfer and allocation of patients by office rule is to be a feature of the future system.

On one matter there will certainly be general agreement between those who have made a study of administration and the medical profession. If the service is to be equal to its difficult task, administration must take counsel with the practitioner and give him the utmost possible freedom in his work and its development. In no public service would the suffocation of personality by iron regulation and inquisition have more damaging effects upon quality.—I am, etc.,

Liverpool. K. W. MONSARRAT.

The Planning Commission's Report

SIR,—I read the proposals of the Planning Commission with great interest, and would like to offer some comments on them. I should state at the outset that I, personally, am in favour of a State Medical Service.

I believe that any radical change in the organization of the medical services should be undertaken only after a plebiscite of the whole profession, including those in the Services. One can hardly differ from that part of the report which points out the faults of the present services and the general principles of what is required to correct them. I wish to criticize three of the suggestions made in the detailed scheme.

The first is that close liaison between the general practitioner and the hospital is not envisaged, nor is the need for it stressed enough. I believe this is because the proposals are not for a completely integrated and unified service. Secondly, since a capitation fee is retained the major evil of the present panel scheme is retained—namely, the inability of the doctor to act justly, according to his lights, toward his patient for fear of offending him and losing financially by a transfer. I believe that abuses of this kind would be worse under a collective scheme than now. Thirdly, the present unsatisfactory contributory hospital scheme is to go on. A recent case came to my notice of a man who contributed for 20 years to the local hospital, and never inside, then retired. His contributions lapsed; he had to go into the hospital for three months, and received a bill for over £37. I would suggest in conclusion that we send a deputation *of doctors who can speak Russian* to study the State service in the U.S.S.R.—I am, etc.,

T. D. CULBERT.

SIR,—The Kensington Division of the British Medical Association would like to record their appreciation of the monthly articles that have appeared in the *Supplement* for the benefit of Study Groups, and of the masterly survey of the problems confronting the medical profession together with their possible solutions as set out in the Interim Report of the Medical Planning Commission (*Journal*, June 20).

The Kensington Division, which, like other Divisions, formed a Study Group to discuss the preliminary details set out in the monthly articles, have been so impressed by this report that they have decided to discuss it "paragraph by paragraph." It is hoped that after 6 to 7 weekly meetings, of which 3 have already been held, the Division will be in a position to give precise answers to the questions asked at the end of the report.—I am, etc.,

H. STEPHEN PASMORE,
Hon. Secretary,
Kensington Division, B.M.A.

Use of the Term "Orthopaedic"

SIR,—I should like to put the case for a more restricted use of the term "orthopaedic." The O.E.D. gives 1840 as the date for the first use of the word in England, but in 1828 Delpech (Montpellier) used the adjective "orthopaedique" with precision as being concerned with the correction of deformities in childhood. In the latter half of the 19th century the word came to include adult deformities, and that remained its meaning till some 20 years ago. Since then the term has been extended by many to include the whole of traumatic surgery of the locomotor system, and it is held by some to embrace all forms of disease of the same system.

This arbitrary misuse of a term is difficult to justify. So far as I know a similar extension of the meaning of "orthopaedic" has not found favour on the Continent and is disputed in the U.S.A. I will give two concrete examples of the disadvantages attached to this lack of precision in the use of the word. First, its employment in Service instructions leads to ambiguity in their interpretation: does the term refer in a particular instance to the treatment of deformities, of fractures, or is it to be extended to include all injuries and diseases of the locomotor system? Secondly, if the latter interpretation is accepted, the use of the word "orthopaedic" in the description of surgeons suggests that only such surgeons can properly treat the wide range of conditions mentioned above, whereas it is well known that many surgeons who have but limited knowledge of orthopaedics in the 19th century sense are fully competent to deal with, and do in fact treat, injuries and diseases of the locomotor system.

It would appear that there is a tendency to include under the term "orthopaedic" at least two distinct branches of surgery—viz.: (1) the treatment of deformities; (2) the surgery of acute injuries to the locomotor system. The first is mainly concerned with the processes of growth; the second with wound infection and the processes of repair.

There is certainly no excuse for the toleration of this looseness of nomenclature. The term "orthopaedic" should be restricted to the first branch. I doubt if any special label need be sought for the second, as it is essentially a branch of general surgery.—I am, etc.,

Cambridge. C. MAX PAGE.

Tetanus after Sulphonamide Treatment of Cavities

SIR,—I wish to correct certain statements in Dr. E. C. Atkinson's letter (July 4, p. 24).

I operated on this woman on April 13 and removed a large left pyosalpinx which was adherent to the bladder and to the intestines in the pelvis. In separating the pyosalpinx from the bladder some pus escaped into the pelvic cavity. Otherwise the abscess was removed whole, but the prolonged pelvic peritonitis from which the woman suffered had produced extensive non-purulent inflammation of the peritoneum over the intestines, and for this reason sulphapyridine powder (15 g.) was sprinkled on to the pelvic floor after the cavity had been swabbed as dry as possible. A medium-sized rubber tube was inserted down to the site of the pyosalpinx and was not removed until the third day.

This case formed one of a series of peritoneal infections in which the effect of sulphapyridine powder was being tried out by several surgeons. The patient progressed satisfactorily until the eighth day, when she developed trismus of the jaw, and in spite of immediate and continued treatment died of fulminating tetanus 26 hours later. An annotation on this case appeared in the *Lancet* of June 27.

I would stress that it is only a presumption that the infection was conveyed by the sulphapyridine powder. The container of the powder used at the operation was not available for examination after the patient died, although a toxigenic strain of *B. tetani* was isolated from the pelvis. Careful examination of other specimens of sulphapyridine and their cardboard containers failed to detect a toxigenic strain of *B. tetani*, although the cardboard of the containers gave cultures of several species of sporing and non-sporing bacteria. Among these organisms were some with the morphology of *B. tetani*, but since three pathologists failed to demonstrate toxin production, the identification of *B. tetani* is incomplete. It is clear, however, that the powder should be supplied in containers made of a substance which can be readily sterilized and not of cardboard derived from waste salvage material.—I am, etc.,

London, W.1. G. M. SANDES.

Urethral Instrumentation

SIR,—To one who, like myself, has been in general practice over thirty years, the letter of Mr. Gordon L. Bohn (July 4, p. 25) on the alleged dangers of a general practitioner passing a catheter might be annoying if it did not offer evidence of the fatuous and narrow outlook of the "one-specialty" man. I can assure Mr. Gordon Bohn that I have on many dozens of occasions passed catheters for acute retention, prostatic and strictural, and have never had cause to regret it—nor has the patient. And, no doubt, so have hundreds, nay, thousands of general practitioners all over the country. It is what we were taught to do—and how to do it—by teachers who knew their job and who also knew what emergencies we were likely to be up against when we started out into the world to earn a living as trained, qualified doctors.

Mr. Bohn's fear of what might happen to the kidneys from too rapid a decompression is surely beating the air. These dangers are well known to every trained doctor, and, therefore, guarded against. Mr. Bohn might, with credit, evince more fear (if he is given that way) of leaving a patient in agony with a superdistended bladder and all the ill effects likely to result from back-pressure on the kidneys, not to mention cardiac complications in an elderly prostatic case.

I note that Mr. Bohn informs us that in his opinion such a case—i.e., acute retention—should be admitted immediately into a hospital or nursing home—surely a counsel of perfection. Patients with retention quite often call the G.P. out of his bed at 2 a.m. or 3 a.m., and where, at that hour, and if in the country, can an ambulance be had straight away, or a bed obtained at a hospital or a nursing home, and if the latter, can the patient always afford the fee? Let us be realists and not frightened by bogies raised by specialists to impress all and sundry with the importance of their particular field of activity. —I am, etc.,

Bournemouth. VINCENT NORMAN.

The Expanding Pelvis

SIR,—Dr. Kathleen Vaughan (June 27, p. 786) has done good service in drawing attention to the importance in labour of the angle of inclination of the pelvic brim, for it is this angle which determines, to a large extent, whether the long axis of the uterus is perpendicular to the plane of the inlet. The larger the angle the more likely it is that the long axis of the uterus (and consequently its thrust) will be directed downwards and forwards against the pubic arch. An angle of about 90 degrees will favour a thrust downwards and backwards, which conforms to the direction of the pelvic inlet.

For the last two years I have measured this angle (together with the sacral angle) in every case referred to me for pelvimetry. I have records of over 200 cases, and hope that in course of time the number will be sufficient to make an analysis worth while.

In Dr. Vaughan's model the angle in extension corresponds to the average in my series. The extremes so far encountered have been 159 degrees and 84 degrees. It is probably a fact that the favourable influence of an optimum angle of inclination of the pelvic brim of 90 degrees may be offset by an abnormally small sacral angle.—I am, etc.,

Reading. PAUL CAVE.

Increase in Hypoglycaemia

SIR,—Dr. E. Sutherland-Rawlings (June 13, p. 739) asks a question which has puzzled me from another aspect, and Dr. R. D. Lawrence (June 27, p. 802) only partly answers it. Formerly almost all my patients were balanced on a daily dose of protamine-zinc-insulin and soluble insulin in such proportions as Z.P.I.:S.I.=3:1, 5:2, and rarely 1:1. Now, however, many patients need more soluble insulin than protamine-zinc-insulin, and more and more are having to alter the proportion in the direction of Z.P.I.:S.I.=2:3, 3:5, and so on, in order to keep the blood sugar approximately normal during the twenty-four hours and to avoid hypoglycaemic reactions at night. At least one colleague has had the same experience.

If, as Dr. Lawrence suggests, the war insulin is stronger, it would seem to be only protamine-zinc-insulin, because the larger doses of soluble insulin do not cause reactions before midday; I have thought that perhaps the wartime soluble insulin contains some impurity which delays its absorption, so that the action is weak in the morning but prolonged to reinforce the protamine-zinc-insulin in the night or early morning; that, in fact, it acts as one of the "delay" insulins. I hope to procure some pre-war hoarded insulin to test this theory, but meanwhile perhaps your readers can throw further light. I shall be grateful if anyone can help me to obtain pre-war insulin.—I am, etc.,

G. M. WAUCHOPE, M.R.C.P.

SIR,—Dr. E. Sutherland-Rawlings (June 13, p. 739) has made the significant statement that most hypoglycaemic attacks occur in the early hours of the morning, and suggests that prophylactic measures should be taken to decrease their incidence. I would like to endorse this view. Insulin hypoglycaemia is an emergency state for which there is specific treatment. It is of common occurrence and usually harmless if prompt treatment is given. Delay in administering the treatment may have progressively serious results.

The protean manifestations of hypoglycaemia are well known, but in my experience the symptoms differ with the type of insulin used. Where soluble insulin is used, any sudden alteration in the blood-sugar level will produce a hypoglycaemic reaction, and a definite chain of symptoms characterizes the reaction. They can be ascribed to adrenaline

secretion, and most commonly comprise shakiness, trembling, nervousness, emptiness, hunger, sweating, tachycardia, pounding pulses, and faintness. On the other hand, with Z.P.I. (zinc-protamine-insulin) there is usually an absence of those manifold manifestations which are attributed to the protective discharge of adrenaline. The reduction in blood sugar is so gradual that the suprarenal glands apparently are not aroused, and the secretion of adrenaline—a safety mechanism—is not called forth.

First effects are referable to cerebral disturbances. Drowsiness, nausea, and headache are observed, or, at first, there may be nothing more than a vague feeling of fatigue and malaise, which cannot be differentiated from fatigue from other causes. It is followed by increasing weakness and then by a little numbness about the mouth or at the ends of the limbs. Finally, the drowsiness increases, or, in some cases, euphoria develops, or delirium, or muscular incoordination, with twitchings of muscles, contortion of the face, or actual convulsions.

The fall in blood sugar is so slow with Z.P.I. that a much lower level of blood sugar has to be reached before any hypoglycaemic symptoms present themselves; the blood-sugar level may fall as low as 40 mg. per 100 c.cm. before symptoms of hypoglycaemia appear. The seriousness of the hypoglycaemic reactions arises from the fact that they are often insidious in onset, and the patient is liable to develop severe symptoms without warning. As the action of Z.P.I. extends for twenty-four hours, and as it takes longer to exert its maximum effect than soluble insulin, hypoglycaemic reactions are prone to occur during the night or sleeping hours, when the injection is given before breakfast, as is customary. In the early hours of the morning the insulin action is unopposed by the inflow of food. The important thing is, of course, to prevent these attacks from occurring, and this can be done by arrangement of the dietary carbohydrate. Since hypoglycaemic reactions are most likely to take place during the night, carbohydrate should be allowed before going to bed. Bedtime feeding is by far the most satisfactory method of preventing such reactions. A workable plan is to give one-sixth of the available carbohydrate at bedtime. This greater spreading out of the dietary carbohydrate is one of the advantages obtained with the use of Z.P.I. Indeed, the most striking feature, from the metabolic point of view, with Z.P.I. is the abolition of states of transient ketonaemia resulting from tissue breakdown. Even during the period of hyperglycaemia and glycosuria after a meal there is no recurrence of ketonuria as judged by the sensitive nitroprusside test.

The hypoglycaemic effect of exercise and muscular exertion raises important considerations in the use of insulin: Unusual exertion in diabetics on soluble insulin usually results in hypoglycaemia, but this is limited to the time of its maximum action, which can be foreseen and avoided. Z.P.I., however, with its prolonged action, makes unusual exercise apt to produce hypoglycaemia at almost any time of the day. There is no need to impose restrictions on the patient and order a "time-table existence" or carefully regulate the amount of exercise. Instead, extra carbohydrate should be given after the exertion, so that the depressing effect of the exercise on the blood sugar is neutralized. All unwonted exercise should be associated with an extra ration of carbohydrate.

As insulin is obtainable in different strengths it is very important for the patient to study the label on the rubber-capped phial to know just what he is using. Apart from using the wrong concentration of insulin per c.cm. (in the bottle) as compared to the scale on the insulin syringe, he should learn to avoid errors in filling the insulin syringe. Sometimes there is a misunderstanding about the amount of insulin prescribed. A unit is a unit, whatever the strength of insulin. That is to say, if 20 units of insulin are ordered the syringe must be filled to the 20-unit mark—using single-strength insulin. If double-strength insulin is used, the syringe must be filled to the 10-mark. And if quadruple-strength is used, the syringe must be filled to the 5-mark. In all these cases, whatever strength of insulin is used, 20 units are being given. It is, consequently, advisable to use a syringe marked in units, as it is more difficult, if not confusing, to work out the dosage using one marked in fractions of a c.cm.

There are three kinds of insulin that are available in this country: (1) Insulin hydrochloride in solution in weak acid, *p*H 3.4. Synonyms for this kind of insulin are: old insulin, unmodified insulin, clear insulin, regular insulin, ordinary insulin, quick-acting insulin, and soluble insulin. (2) Protamine-insulin, which is a suspension at neutral reaction, *p*H 7.2. Synonyms for this kind of insulin are: Hagedorn insulin, Leo "insulin retard," protamine insulinate, delay insulin, and Danish protamine-insulin. (3) Zinc-protamine-insulin, which is also a suspension at neutral reaction. Synonyms for this type of insulin are: protamine-zinc-insulin, Canadian protamine-insulin, and protamine-insulin (with zinc) suspension. The nomenclature of insulins needs clarification. Up till 1935 there was available only one kind of insulin; the word "insulin" meant only one thing. Since Hagedorn of Denmark introduced protamine-insulin and Scott of Toronto produced zinc-protamine-insulin there has been a lot of confusion, because of the multiplicity of names. To distinguish the old insulin from the other more recently introduced insulins it is convenient to refer to old insulin as soluble insulin and the other as suspended insulins. Of the three types of insulin the preparations can be obtained in the following different concentrations: Soluble insulin—20 units per c.cm. (single strength); 40 units per c.cm. (double strength); 80 units per c.cm. (quadruple strength). Protamine-insulin—40 units per c.cm. (double strength); 80 units per c.cm. (quadruple strength). Zinc-protamine-insulin—40 units per c.cm. (double strength); 80 units per c.cm. (quadruple strength).—I am, etc.,

Guy's Hospital. GEORGE R. W. N. LUNTZ.

Bacteriophage Treatment of Bacillary Dysentery

SIR,—With reference to the interesting paper by Dr. Arthur Compton (June 13, p. 719) giving comparative statistics of treatment in Egypt, may I point out that his figures deal only with death rates and do not, and in the circumstances cannot, give figures for the duration of illness. From the point of view of the medical branches of all three Services, whose aim is to return a fit patient to duty at the earliest possible moment, these figures are as important as the death rate.

Through the courtesy of Dr. Compton, Major Jameson, R.A.M.C., and I were able to try out the bacteriophage treatment of dysentery in a Service hospital during the autumn of 1940. The series was small, consisting of 12 cases with 8 controls which were treated with the then standard treatment of sodium sulphate and fluids. All patients recovered, as did the controls, but there was little variation in hospital time between the two groups, certainly not enough to justify the continuation of the bacteriophage treatment. The introduction of sulphaguanidine in the spring of 1941, which enabled us to reduce the duration of illness, even in some cases of *B. shiga* infection, to 11 days from the onset, even when the patient was not admitted before the third day, appeared to make the further trial of bacteriophage superfluous.

There are, of course, other points to consider: (1) Dr. Compton's figures deal with a whole community, whereas we were dealing with a limited age group (20–50), which, moreover, did not include women, children, or old persons, and none of our patients was suffering from other diseases. (2) Civilians in Alexandria are so "phage-minded" that to my knowledge they treat themselves with bacteriophage on the slightest suspicion of "Gyppy tummy," whereas in our cases treatment with bacteriophage was rarely begun before the second or third day. (3) Our cases were all "virgin soil," whereas, owing to the endemicity of bacillary dysentery in Alexandria, I should imagine that the local inhabitants must all possess a partial immunity with its concomitant titre of dysenteric bacteriophage, which is greatly increased by treatment with this substance. (4) We had no opportunity of trying out the prophylactic value of bacteriophage, to which, I know, Dr. Compton attaches importance.—I am, etc.,

D. C. WILSON.
Surgeon Commander, R.N.V.R.

Active Rehabilitation in the R.A.F.

SIR,—Those Fellows of the Royal Society of Medicine who were present at a recent meeting at an R.A.F. hospital, I am sure, could not fail to have enthused over the technique and film of rehabilitation of fracture patients. We were shown how patients who were confined to bed with a fractured limb were

given hourly exercises to tone up not only the muscles of the injured limb in plaster or splints, but also those of the trunk and other free limbs. Thus once the period of recumbency is over the patient is able to take part in active rehabilitation team-work or games. A film was shown in which men with legs in plaster took part in cycle team-work and played games such as football, etc. All were under the supervision of a massage orderly or medical officer.

How different from our feeble efforts still in most civilian hospitals, where a patient in plaster lies and physically rots in bed, or loafs about on a stick in ward or corridor, where the best effort a masseuse of the C.S.M.M.G. can do is her routine stock-in-trade of massage or faradism to the injured limb. Surely the wonderful effort made in the R.A.F. medical team must produce magnificent results—a man going back to his job with zest, rather than the half-hearted way the workman who has had a fractured limb, labouring under the worry of litigation under the Workmen's Compensation Act, is cajoled back to his normal self.

Surely the time has come for the Chartered Society to take up the new spirit in training its members, and to run a refresher course in modern rehabilitation methods at which some of these R.A.F. methods and results could be preached by Mr. Watson-Jones. Nor did I fail to note that the medical officer himself, putting dignity to the wind, showed his patient how co-ordination and normal gait should be attained in walking or skipping: rather different from just going round a ward in a white coat giving instructions to a masseuse or sister. I am aware that these are not new methods to such pioneers as Mr. H. E. Griffiths at the Albert Dock Hospital or Mr. E. A. Nicoll at Mansfield, but in the words of the final caption on the R.A.F. rehabilitation film, some of us surgeons dealing with fractures with our masseuses must 'Go to it."—I am, etc.,

London, N.W.1. G. O. TIPPETT, F.R.C.S.

Mental Symptoms in Bromide Intoxication

SIR,—Dr. Howard Kitching's interesting article (June 20, p. 754) prompts me to describe briefly 2 cases which occurred in my practice some years ago.

1. Man aged about 50. Symptoms of effort angina. Small doses of sodium bromide were administered over a period of 2 or 3 months. A consultant considerably increased the dosage. Three days later a policeman rang my night bell and informed me that he had found one of my patients wandering in the road in an almost nude condition. I hastened to the patient's flat and found him restless, agitated, and tremulous. He appeared hallucinated and did not recognize me. The question of certification arose and the climax came with refusal to take medicine. I was surprised to note the gradual disappearance of mental symptoms.

2. Lady aged over 70, suffered from arteriosclerosis and hyperpiesis. Bromide had been given for some weeks. On one of my periodical visits I found her incoherent, confused, and depressed. Her speech was slurred. Slight cerebral haemorrhage appeared to have supervened. Medicine was discontinued. At the end of a week the patient was bright, cheerful, and speech was normal.

Dr. Howard Kitching's reference to the number of N.H.I. prescriptions containing bromide (Barbour, Pilkington, and Sargant, 1936) is of special interest. It seems possible that many cases of mild intoxication are overlooked. My experience of skin lesions is that they are more likely to occur when initial dosage is comparatively large.—I am, etc.,

Nottingham. J. J. GIBB.

Operations and Workmen's Compensation

SIR,—Your article on the legal aspect of operations as they relate to injured workers and workmen's compensation (June 20, p. 776) is most instructive; moreover, it is gratifying to see that you recommend a broader vision in this matter taking into account the psychological and sociological attitude of the worker. There can be no doubt that the worker's mental attitude towards the workmen's compensation law as it now stands is a very unfavourable one. So long as he remains under the impression that doctors employed by insurance offices are biased in favour of getting him back at any price to some sort of light work, and to achieve thereby payment of compensation for partial incapacity, his reluctance to undergo operations, for good or evil, will remain.

It is deplorable that the matter leads to dispute between the doctor of the insurer and the worker's doctor. There are reasons enough to make the latter reluctant to accept the opinion of his opponent. Will the effect of the operation be of lasting value? Will the worker after operation really find the desirable "light work"? What will be his position if, after being put on light work with compensation for partial incapacity, a second accident occurs, perhaps resulting from his disability, and the process of litigation begins all over again? What will be the worker's position if, after the operation, he needs appliances, costly to procure and costly to repair and maintain, while there is no statutory provision under either the National Health Insurance or Workmen's Compensation Acts for their supply?

The danger that "professional medical witnesses," highly skilled in presenting a particular aspect of the case, may exercise much influence on a lay court, to use Dr. W. A. Brend's apt observation (*Traumatic Mental Disorders in Courts of Law*, 1938, p. 93), cannot be denied, and the demand for medical boards which, as Dr. Brend puts it, "would tend to select their expert witnesses and advisers more for professional status and integrity than for their skill in masked advocacy" appears to be fully justified. The whole problem is another proof of the need for redrafting as soon as possible industrial accident insurance in this country. Indeed the unsatisfactory conditions relating to operations under the present workmen's compensation law illustrate once more that the latter tends to prolong invalidism, a matter which has been recently discussed on a broad background and with much vigour before the Royal Society of Medicine by such authorities as Dr. Bernard Hart and Mr. H. E. Griffiths, from the medical point of view, and by His Honour Tom Eastham, K.C., from the legal.—I am, etc.,

HERMANN LEVY.

Adrenaline Bronchoconstriction

SIR.—The chief action of adrenaline is to produce vasoconstriction, and those who maintain that asthma is the result of muscular bronchospasm find difficulty in explaining how an injection of adrenaline stops an asthmatic attack, because its action on muscular fibre is very slight, beyond reducing blood supply. When an injection of adrenaline is given it produces a systemic vasoconstriction and the blood pressure rises, but this is quickly followed by a reactionary vasodilatation, when it will be found that the blood pressure falls below its original level, and it is then that the relief of dyspnoea is experienced. This systemic vasodilatation relieves the local vasodilatation of the bronchial mucosa, which had previously been maintained as compensatory to the systemic vasoconstriction and was the cause of the dyspnoea. Repeated large doses of adrenaline are apt to interfere with, or prevent altogether, the subsequent vasodilatation reaction, and so relief of the dyspnoea is not obtained; in fact the condition may be made worse by continuing the adrenaline injections. When this state has been reached it will be found that a single injection of morphine will usually give immediate relief, after which, not infrequently, no further adrenaline is needed, and in any case a smaller dose will then be found effective.

All this difficulty arises from the inherited traditional belief —one of the hardest things in medicine to overcome—that asthma is the result of muscular bronchospasm, and this makes it necessary, in order to explain how adrenaline relieves an asthmatic attack, to pervert its natural action on the vasomotor system, and make it act, for this occasion only, as a muscular dilator.—I am, etc.,

London, W.1. ALEXANDER FRANCIS.

Respirator Dermatitis

SIR,—J. Petro (May 23, p. 631) has well described and illustrated his careful investigation of contact dermatitis caused by rubber respirators. In therapy his mainstay was calamine lotion. Because the irritant is usually a reducing agent, I believe he would get better results from the use of an oxidizing medicament, such as 1 in 3,000 potassium permanganate solution

in cool moist compresses frequently refreshed, or sodium perborate 5% to 10% in a greaseless ointment base or hydrous wool fat.

The anti-oxidant of rubber can often be neutralized, as Obermayer pointed out (*Arch. Derm. Syph.*, Chicago, Jan., 1933, **27**, 25), by soaking the rubber appliance overnight in 4% sodium hydroxide in water. The appliance must then be rinsed thoroughly before use, and after hydroxide treatment it may prove innocuous. The "dry, scaly stage," which Petro described as being resistant to treatment, may represent complication of dermatitis venenata by seborrhoeic dermatitis extending from the scalp. I have noted such complication (*Synopsis of Diseases of the Skin*, The C. V. Mosby Company, St. Louis, 1942, p. 82), and I recommend for it the use of 2% crude coal tar in lanoline, to which water is added to make the salve creamy. The scalp must be treated simultaneously. Washing should be done with a sulphonated oil rather than soap. I hope that this criticism is constructive and useful.—I am, etc.,

Kansas City, U.S.A. RICHARD L. SUTTON, jun., M.D.

Doctors as Politicians and Strategists

SIR,—I am a member of the Socialist Medical Association but was not present at the meeting to which your annotation refers, and do not think I should have voted for the resolution there stigmatized, because I do not know the precise connotation of the phrase "second front"; arithmetically there seem to be at least four "fronts" at the present time if a "front" is a locus where gallant men are fighting and dying in large numbers. But I suggest that your contributor should descend from the pantomime elephant on which he is perched and choose a more lowly quadruped, say, a donkey. Had the S.M.A. passed a resolution to the effect that, on *medical* grounds, the "formation of a second front" was desirable, it *would* have deserved ridicule. But the fact, quite as obvious to the derided man in the street as to your contributor, that members of the S.M.A. have no more knowledge of strategy than any other sample of educated men and women, acquits them of any charge of seeking to exercise an illegitimate influence on public opinion. Why a society of medical men and women should have less liberty to express an opinion on matters of general interest than any other incorporation of the King's subjects is not obvious. A much greater danger to the prestige of our profession is when medical individuals or societies express dogmatic opinions on subjects which are, or may be thought to be, within the scope of their expert knowledge but have in fact never been seriously studied by them. Examples of this fault are sufficiently numerous.—I am, etc.,

Loughton. MAJOR GREENWOOD.

SIR,—Your annotation (July 4, p. 16), apart from giving publicity to the Socialist Medical Association, elaborates the well-worn text that the doctor must stick to his last and not dabble in politics.

You state that "the grim realists who are courageously directing Russian policy must feel mildly amused at the picture of the English doctor turned strategist." May I refute that statement with the words of Georgi Miteryev, People's Commissar of Public Health in the U.S.S.R., who in a message last week to Sir Alfred Webb-Johnson, which was read at a meeting of the Anglo-Soviet Medical Council on June 29, said: "We highly appreciate the help rendered us by the scientists of England and the entire people of the British Empire in our common struggle against the enemy of all progressive mankind, and are confident that the opening of a second front in Europe in 1942 will bring closer the day on which peoples of our countries together with all the freedom-loving peoples of the world will celebrate a final victory over bloodthirsty Hitlerism." Judging by results, Stalin (who doubtless should have stuck to his last in the theological seminary where he received his early training) and the Soviet people know what they are talking about.

Since the early establishment of a second front in Europe is the declared policy of our Government, I suggest, Sir, that the Prime Minister, who has already discussed this question with the Soviet Foreign Minister, should be left in no doubt as to the support this country will give him in carrying out this essential step towards a speedy victory. Why, therefore, is it "slightly ridiculous" for a body of socialist medical workers to express their support of this policy at the present time?—I am, etc.,

London, S.W.17. L. T. HILLIARD, M.B.

SIR,—I desire to protest against your annotation "Doctors as Politicians and Strategists." I consider that this article is neither courteous nor well reasoned. It is the privilege of every adult British citizen to vote on political issues, and it is his duty to render himself competent to vote by a careful study of politics. The successive crises of Manchukuo, Spain, and Czechoslovakia have demonstrated the intimate connexion between policy and strategy. The "grim realists" who are directing Russian policy were the first to emphasize the importance of universal political education, and they would hardly excuse members of a learned profession who confessed themselves too preoccupied to study urgent political questions. I should be very sorry if your annotation were allowed to pass without protest from at least one member of the B.M.A.—I am, etc.,

London, W.C. O. F. H. ATKEY.

SIR,—The activities of the Socialist Medical Association mentioned in your columns give rise to several interesting questions. To begin with, the formation of a Socialist Medical Association implies that there is such a thing as socialist medicine? What is socialist medicine? Do members of the Socialist Medical Association claim to practise a peculiar kind of medicine which is unknown to, or not understood by, their non-socialist colleagues? Or do socialist patients differ so much from the ordinary run of humanity that they can only obtain efficient medical treatment from socialist doctors? Or is it just a political stunt?—I am, etc.,

Epsom. A. J. COLBY-TINGEY.

SIR,—The writer of your annotation takes considerable exception to a recent resolution passed at the annual general meeting of the Socialist Medical Association, in which our support for the opening of a second front in Europe in 1942 was expressed. Perhaps your writer is unaware that this is the official policy of our Government and of the United Nations. May I refer him to a statement issued by the Foreign Office on June 11, on the treaty between the Soviet Union and our own country, in which these words occur: "Full understanding was reached between the two parties with regard to the urgent tasks of creating a second front in Europe in 1942." One is driven to conclude that there are only two possible explanations of your writer's warmth of disapproval of the S.M.A. resolution, the first being that he has taken this opportunity of disagreeing with the expressed policy of the United Nations. We hesitate to think that you would be willing to give space to a writer with such aims, and are therefore left with the second explanation—that in him parochialism has grown to such an extent that he has forgotten that a doctor is not only a doctor but is also a citizen, with the full duties and privileges of citizenship.

Your writer says, "One would have thought that medical men had enough to do now . . . in matters concerning the organization of their profession," but he completely ignores the fact that the S.M.A. memorandum from which he takes his quotations goes on to outline proposals for immediate steps which we consider should be taken in order that the medical services may the more efficiently meet the demands which will undoubtedly be made on them when the second front is opened. We would remind him that the plans now being made for the reorganization of the profession *after the war* will have no chance of being put into effect unless the medical profession considers how to achieve the utmost degree of efficiency in the prosecution of the war *now*. No one reading this annotation would realize that the S.M.A. resolution was the preamble to a series of proposals for increasing efficiency. Your writer, like the rest of us, is entitled to hold his own opinions and to express them. He is not entitled to misrepresent the facts.—I am, etc.,

ALECK W. BOURNE,
Hon. Secretary, Socialist Medical Association.

*** Space will not allow this interesting correspondence to be continued. Needless to say, both of Mr. Aleck Bourne's "possible explanations" are entirely wide of the mark.—ED., *B.M.J.*

Analytical Chemists and E.M.S. Laboratories

SIR,—I am grateful to Dr. Griffith Evans, president of the North Wales Branch of the British Medical Association, for his letter (June 20, p. 774) directing attention to the serious injustice done to public analysts and other analytical chemists in various parts of the country through the operation of the Emergency Public Health Laboratory Service.

The Institute of Chemistry has been in correspondence with the Ministry of Health on this matter since November, 1939, but although the Ministry may appreciate that public analysts and other analytical chemists play, and have for a long time played, a most important role in the preservation of the health of the community throughout this country by the examination of food, water, milk, etc., it has apparently overlooked the fact that the maintenance of the laboratories in which this work is done may be seriously jeopardized if the analysts are deprived of any large section of their professional practices by unfair competition.

Analytical and consulting chemists, like medical men, both individually and as members of a professional body, strongly uphold the tenet of professional procedure which forbids soliciting for practice; yet circular letters have been addressed to medical officers of health and other medical practitioners offering the services of emergency public health laboratories and soliciting in such terms as, "Hoping that we may be of assistance to you in the future." Your readers may well imagine the feelings of medical men if attempts were made to interfere in this way with their professional practices.

The correspondence between the Institute and the Ministry has been somewhat protracted and has not yet been concluded, but it is encouraging to find a supporter in the medical profession who appreciates not only the impropriety of the proceedings referred to, but the extreme danger of transferring work of the character indicated from persons of long experience in a particular district to others comparatively recently qualified.—I am, etc.,

RICHARD B. PILCHER,
Russell Square, W.C.1. Registrar and Secretary, Institute of Chemistry.

SIR,—It was most refreshing to read the letter from Dr. Griffith Evans with reference to stranded public analysts, and to find that the pledge given in 1939 by Sir Arthur MacNalty had not faded from the memory of everyone. There can be little doubt that it is no more than a memory, however, as it has never been possible to persuade any of the authorities to implement it, or any other member of the B.M.A. than Dr. Evans to support it.

It might, perhaps, be not amiss to remind Dr. Evans that charity begins at home, and that while defending members of other professions he might do well to note that his words apply verbatim to the unfortunate pathologists who have been stranded by the "new order" in pathology. Many of these have offered themselves with their laboratories, equipment, and staff to this "new order," and their offers have been not merely refused but ignored. These methods of "liquidating" the existing members of a profession seems to savour of the very principles against which this war is being waged. Those who venture to protest are reminded that a national emergency exists. Surely such an emergency is just the time when the help of these unfortunate individuals is most needed, and it is now clear that the emergency service is to be used as a Trojan horse of the woodenest kind to ensnare the profession after the war is over.—I am, etc.,

PATHOLOGIST.

Nurses in Hospital

SIR,—The brutality of matrons (and sometimes of sisters) to their nurses is notorious. It needs no investigation. (It is not universal. I know one hospital well in which the nurses, and particularly the probationers, are watched over with an almost maternal care.) Why does this state of affairs exist and why is it allowed to continue?

I think it is because: (1) the care of the nurses is left entirely to the matrons; and (2) the matrons are chosen for their organizing and disciplinary capacity without regard to their humanity. The fact that matrons, as a class, are conscientious workers, devoted to duty, only makes matters worse. They have been through the mill and have survived. They are healthy and hard and they think others should be the same. An occasional slacker or would-be valetudinarian among the nurses confirms the matrons in their mercilessness.

The remedy lies with hospital boards and medical officers. Matrons must be made to realize that they are responsible for the health and comfort as well as for the efficiency of their staffs. To this end there must be propaganda. The Ministry of Health and the nursing press are obvious means. Perhaps two or three actions against hospitals for compensation in carefully selected cases in which life or health has been needlessly sacrificed might help. Have the nurses an organization that could carry this out?

The feeding of nurses and their opportunities for relaxation are, on the whole, much better than they were, but there is still room for immense improvement in some hospitals.—I am, etc.,

Colwyn Bay. S. L. B. WILKS.

Obituary

JOHN CHARLES DAVIES, M.D.

Many members of the B.M.A. will learn with regret of the death of Dr. J. C. Davies, J.P., which took place at his home at Rhos, near Wrexham, on June 24. He had been president of the North Wales Branch and chairman of the Denbigh and Flint Division, and served on the Welsh Committee for six years, on the Insurance Acts Committee for twelve years, and on the Rural Practice Subcommittee for thirteen years.

John Charles Davies was born at Pant in May, 1859, and after studying medicine at the London Hospital qualified M.R.C.S., L.S.A. in 1882, took the L.R.C.P. in 1884, the D.P.H. in 1899, and the M.D. of Durham University in 1901. During sixty years of practice at Rhos he won the love and esteem of all the neighbourhood. He held many local appointments and was consulting surgeon for the North Wales district of the Great Western Railway and surgeon to the Ruabon Accident Hospital. To the end of his days Dr. Davies kept abreast with new discoveries and movements in the world of medicine and surgery, and made many journeys to attend medical functions and conferences. When in London he rarely missed the chance of a visit to the Royal College of Surgeons, and right up to the outbreak of the present war he annually went for fourteen days to some postgraduate course. He was heart and soul for B.M.A. work, and apart from that his chief hobby was the permanent mounting of pathological specimens from cases under the care of his son, Dr. A. Lloyd Davies, in the War Memorial Hospital at Wrexham.

Dr. Davies was instrumental in forming the first Territorial company in Rhos, of which he was captain. In November, 1914, he led his company to France, and after enduring many hardships of war he was transferred to the R.A.M.C., where he worked in field ambulances and other forward units in France and Flanders, and retired from the Army with the rank of lieut.-colonel. On returning to civil life he continued in active practice, and was attending patients until three weeks before his death at the age of 83. In 1928 Dr. and Mrs. Davies received a public testimonial from the people of Rhos in recognition of his great and beneficent services. Of no one can it be more truly said that he lived for his profession and his patients.

C. W. PAGET MOFFATT, M.B., D.P.H.

Dr. Christopher William Paget Moffatt, late M.O.H. for Bolton, one of the most prominent members of the Public Health Service, died on May 18, aged 79, in Southport, where he had lived in retirement for some years.

Paget Moffatt received his early education in Brussels, where his father was British chaplain for the Colonial and Continental Church Society. He afterwards studied in the Universities of London, Göttingen, Cambridge, and Liverpool. Before entering medicine he studied modern languages and obtained the M.A.Lond., being placed at the head of the list in both French and German. He was at this time well known as a teacher of languages, and was for some years on the staff of the University Correspondence College. He was the author of two textbooks, *Science French* and *Science German*, still used with unfailing success for the purpose for which they were originally intended. Paget Moffatt later began the study of medicine at Cambridge, where he graduated B.A. (Nat. Sciences

Tripos), afterwards taking the Conjoint diplomas, the M.B. (Kanthack gold medal in pathology) and B.Ch.Camb. in 1904, and the D.P.H. 1905. His thesis for the M.B., on myelopathic albumosuria, was published in the *Lancet*. He took his clinical course at Liverpool, where after qualification he held the appointments of medical officer to the Northern Dispensary, hon. anaesthetist to the Royal Southern Hospital, and clinical assistant to the throat and ear department at the Royal Infirmary.

Deciding to enter the public services, he accepted an appointment as assistant M.O.H. and assistant school medical officer to the Bolton County Borough in 1908. In 1914 he was appointed deputy M.O.H. and tuberculosis officer, which positions he held until 1921, when, on the retirement of Dr. Gould, he was appointed medical officer of health and school medical officer. He also acted as medical superintendent of the borough isolation hospital from 1914 to 1931, and from 1922 to 1931 was senior medical officer to the venereal diseases department. From all these positions Dr. Paget Moffatt retired in 1931. After leaving Bolton he was engaged for two years as temporary M.O.H. for a combined district at Epsom pending the alteration of certain areas under a scheme of the Surrey County Council. He was a member of the British Medical Association, and of the Society of Medical Officers of Health, of the North-Western Branch of which he was president in 1926-7.

Paget Moffatt (writes a former colleague) was a man of outstanding personality. He brought to his public health duties a thorough training in medicine, together with a wide and accurate scholarship. During the whole period of his administrative appointment he maintained an active interest in the various hospitals and clinics under his control, particularly the infectious diseases hospital, for clinical medicine was his real interest. He loved attending patients and they loved him. He never allowed the doctor to be submerged into the official. It was difficult to think how he found time for his many activities, but he was a rapid worker. He was never irrelevant. His long experience enabled him to grasp and solve problems very quickly and to translate his decisions into prompt action. He was an excellent companion, there being no dull moments in time spent with him. He will long be missed by those who had the privilege of his friendship.

Dr. ALEXANDER BRYCE, who died on June 7 in his 80th year, had been a member of the B.M.A. since 1888 and was honorary secretary of the Section of Therapeutics when the Association met at Birmingham in 1911. He studied medicine at the University of Glasgow, graduating M.B., C.M. with first-class honours in 1886, and M.D. with honours in 1893. As a student he won the Brunton memorial prize, and after qualification was assistant to the professor of medical jurisprudence at Anderson College and took the D.P.H. of Cambridge. It was Lawson Tait, the eminent surgeon, who persuaded Bryce to start a practice in Birmingham. The two met on a golfing holiday. Bryce, having completed his brilliant career at Glasgow University, had begun to practise in Killin; he was there for just three years. He went to Birmingham in 1894 and quickly took his place in rank with the galaxy of medical men then busy in Birmingham—Tait, Gilbert Barling, Stacey Wilson, Thomas Chavasse, James Sawyer, and Jordan Lloyd. Some of his friends urged him to specialize in surgery, but Bryce preferred to go ahead as a general practitioner and to specialize only in branches that particularly appealed to him: dietetics and manipulative surgery. He quickly built up a considerable practice and was associated with Robert Jones in orthopaedic work. In 1899, to further his knowledge of the American approach to dietetics and to manipulative treatment, Bryce visited the United States, and when he came home he gave himself more and more to the study of these subjects. His book *The Laws of Life and Health*, designed for popular instruction, went through several editions and was reissued in revised form shortly before the outbreak of war. In 1923 he took up an appointment as chief medical officer for the Britannic Assurance Company and retained it until he retired in 1939.

We regret to announce the death at Oxford on June 29 of Dr. WILLIAM DUNCAN STURROCK, assistant obstetric physician to the Radcliffe Infirmary, and since 1927 medical officer to Radley College. He was born on May 16, 1880, and from Charterhouse went up to Magdalen College, where he gained a first class in the Final Honour Schools in Physiology, and then went on for his clinical studies to King's College Hospital, graduating B.M., B.Ch. in 1906. After holding house appointments at King's and at the Royal Free Hospital he began practice at Oxford in 1908, and took his D.M. in 1912. He served throughout the last war in Flanders and Macedonia, reaching the rank of lieut.-colonel in command of the 82nd Field Ambulance, and after the Armistice was posted to Transcaucasia. He was twice mentioned in dispatches and awarded the D.S.O. in 1918. He joined the B.M.A. in 1908, and was vice-president of the Section of Obstetrics and Gynaecology at the Oxford Meeting of the Association six years ago. He had also been president of the Oxford Medical Society. Sturrock was a keen golfer and fisherman, and his son's performance as an outstanding member of the Oxford crew gave him obvious pleasure.

By the recent death at the age of 84 of Dr. HERBERT RYDING MOSSE of Aldwick, near Bognor Regis, formerly of Horsham, the two principal medical charities have lost a generous friend of a type that they can ill spare, for he had subscribed annually to both the Royal Medical Benevolent Fund and the Royal Medical Foundation of Epsom College for many years, and the total of these benefactions fell little, if at all, short of £600. In addition, he handed to Epsom College in 1928 stock then valued at £1,000—worth a good deal more now—to found a leaving exhibition, tenable for one year only, by a boy entering on some definite career. Dr. Mosse studied at Charing Cross Hospital Medical School, whence he became M.R.C.S., L.S.A. in 1882, and M.D.Durh. in 1885. He was house-surgeon at Charing Cross Hospital, R.M.O. at the Bolingbroke Hospital, Wandsworth, and M.O. to the Wandsworth Provident Dispensary. He was a keen archaeologist and historian, and the author of books on various aspects of Sussex history and prehistory. He was a Fellow of the Royal Horticultural Society, and a member of various other learned bodies.

Dr. ERIC J. WHYMARK died on June 4 at the early age of 43 years, after a short illness. He was educated at the Liverpool Collegiate High School and at Liverpool University, taking the M.B., Ch.B. degrees in 1923. After qualifying he held appointments as house-surgeon at the David Lewis Northern Hospital, and medical officer to the Brownlow Hill Institution, Liverpool. At the time of his death he had been in general practice for fourteen years, and had specialized in anaesthetics, holding appointments of honorary anaesthetist at the Liverpool Royal Infirmary and anaesthetist at the Walton Institution. Up to two years ago he was honorary anaesthetist at the Women's Hospital. During the latter months of the last war he served in France as second lieutenant with the 9th Batt. of the King's Liverpool Regiment. Dr. Whymark took an enthusiastic interest in anaesthesia, being a valued member of the committee of the Liverpool Society of Anaesthetists, and his colleagues greatly mourn his loss. Whether in anaesthetic work or private practice his one thought was for the welfare of his patients, and he was held in high esteem by all.

Universities and Colleges

UNIVERSITY OF BIRMINGHAM

At a Congregation on July 4 the following degrees were conferred:

HON. LL.D.—Arthur Stanley Barnes, M.D., D.Sc., F.R.C.P., Dean of the Faculty of Medicine, University of Birmingham.

M.D.—G. S. Hall.

M.B., CH.B.—*‡‖W. H. Bond, *‡‖J. C. Fulford, †A. W. Blackwell, †B. T. Davis, †G. M. Holme, †Elizabeth A. Johnson, J. W. Abbiss, Margaret R. D. Banks, Winifred M. Biddle, Jean S. I. Brown, G. B. Cliff, Margaret I. Coghill, Christine M. Edmonds, Margaret S. Garden, Lilian M. A. George, J. T. A. George, Elizabeth J. F. Heynemann, B. Hyde, D. H. Joseph, ‡A. C. Kendall, J. E. Kerton, Jean D. MacArthur, D. McL. McDonald, Mary P. McHugh, D. J. S. McIlveen, T. A. Phillips, ‡M. C. Platten, P. F. Rudd, D. C. Sachdeva, P. R. Sondhi, P. R. Stephens, J. MacF. Stuart, H. O. Thomas, R. S. Thorpe, A. Watson-Jones.

The following scholarships, medals, and prizes have been awarded:

Queen's Scholarship (fourth year), I. Macnab; (fifth year), R. W. Tudor; (final year), J. C. Fulford. *Ingleby Scholarships*, W. H. Bond, J. C. Fulford. *Foxwell Memorial Medal*, M. C. Platten. *Gamgee Memorial Medal*, W. H. Bond. *Priestley Smith Prize in Ophthalmology*, G. M. Holme. *Russell Memorial Prize*, Elizabeth A. Johnson. *Butterworth Prize*, J. C. Fulford. *Leith-Newman Prizes in Pathology* (fourth year), Medical, Theresa Lazar; Dental, N. Norris. *Thompson Prize in Anatomy* (third year), R. H. Strudwick. *Windle Prize in Anatomy*, L. D. Abrams. *Humphreys Memorial Prize*, D. H. Goose.

* First-class honours. † Second-class honours. ‡ Distinction in medicine, ‖ Distinction in surgery. ¶ Distinction in midwifery.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—[1 2]G. H. Valentine, [1 3 4]G. H. Wattley, [5]Nancy R. Baldwin, R. F. Brooks, Rosalie M. Child, D. G. Davies, J. Deighton, G. F. McD. Hall, Joyce Kennard, [4]A. G. H. Mitchinson, E. W. Moore, J. L. Pardoe, A. R. Rowe, N. Slade, M. H. Thomas, Jean Wallace, G. A. Walton. *In Group II (completing examination)*: K. L. Brown, A. H. M. Oakes.

[1] Second-class honours. [2] Distinction in obstetrics. [3] Distinction in medicine. [4] Distinction in public health. [5] Distinction in surgery.

Medical Notes in Parliament

Health in Scotland

In the House of Commons on July 8 Mr. TOM JOHNSTON presented the health, housing, and education estimates for Scotland. He said there was evidence of improvement in the physical condition of school children despite the strains of war and, in some areas, an intensification of overcrowding. There was an increase in most respiratory diseases and in cerebrospinal meningitis, and a disturbingly high rate of infant mortality, but on the whole the public health was not deteriorating. Infant mortality per 1,000 births rose from 68 in 1939 to 78 in 1940 and 83 in 1941. He had asked the Department of Health's Scientific Advisory Committee under Sir John Boyd Orr to report quickly on the causes of this rise and to suggest remedial measures. The committee had co-opted a subcommittee of 12 experts on child health in Scotland. Meanwhile, infant mortality figures for 1942 showed, so far, a definite improvement.

With regard to infectious diseases the incidence of scarlet fever had fallen by one-half, and that of measles was also down; but there were increases in diphtheria, enteric fever, and whooping-cough. The number of diphtheria notifications, which averaged about 10,000 yearly before the war, rose in 1940 to 15,711; in 1941 there were 13,586, but for 1942 so far the number was again the pre-war average. To-day 73% of school children and 58% of preschool children in Scotland were immunized. Among the immunized children there was one death in about 1,000 cases; among the non-immunized there were 427 deaths out of about 7,000 cases. Referring to the outbreak of small-pox in Glasgow (*Journal*, July 11, p. 59), Mr. Johnston said that of 33 cases 20 had never been vaccinated and 13 had not been vaccinated since infancy. There had been 4 deaths. The City Medical Officer of Health and the Chief Medical Officer of the Department declared that the small-pox was of the most virulent and infectious type. The population of Glasgow had responded promptly to the appeal and 400,000 persons had gone voluntarily to be vaccinated. There was an adequate supply of lymph for all the population in the industrial area around Glasgow. Several medical officers of health reported that since the outbreak of war there had been a considerable increase in venereal disease, and the Scottish Office was considering whether further measures of control were possible. There was a disturbing increase in scabies; examination and treatment of verminous persons and the cleansing or destruction of verminous clothing were being carried out in a number of areas in Scotland. Cerebrospinal fever, a disease largely accelerated by wartime conditions, was still 5 times the pre-war figure, but in the first half of 1942 a considerable decline had been observed. Tuberculosis still showed an upward tendency, notifications for 1941 being 8,302, or over 800 cases more than in the last pre-war year. Mr. Johnston here interposed the remark that the general health of Scotland would suffer greatly if next winter there was an acute shortage of domestic fuel. He spoke of plans for using timber-mill waste as a fuel reserve next winter.

Hospital Accommodation

Before the war Scotland was short of some 3,600 hospital beds; now it had, under Government ownership, 9 first-class acute hospitals with 8,000 beds, and 66 convalescent ones with 3,800 beds. So long as the beds were not filled with war service cases they should be used, together with the doctors and nurses who were standing by, to reduce the waiting-lists in the voluntary hospitals. Already nearly 6,000 of these waiting-list cases had been dealt with. An experiment in providing specialist diagnosis and treatment was being tried in the Clyde valley. Panel doctors' co-operation had been invited in this experiment, whereby any panel patient between the ages of 15 and 25 could be referred to the Regional Medical Service for specialist diagnosis and, where necessary, hospital and convalescent home treatment. These facilities were provided in the State hospitals and there was no charge. The scheme began in January, 1942, and by July 3 some 610 cases difficult to diagnose had been dealt with. In some cases the hospital doctors recommended that the Ministry of Labour should transfer the patient to more suitable employment. Mr. Johnston said he hoped to see the system of specialist diagnosis and free treatment greatly extended, both in age groups and in areas. It already covered an area in which about 44% of the panel patients in Scotland resided.

Colonel ELLIOT asked for information about the supply of nurses for fever and tuberculosis hospitals, and Mr. WESTWOOD (Under-Secretary of State for Scotland) replied that there was a definite shortage of nurses in all spheres of hospital work.

Colonel ELLIOT thought that if the gross number of beds and the gross number of nurses and reserved nurses in Scotland were taken they would find they had enough nurses. When the question of the E.M.S. was raised the Minister of Health and the Secretary of State for Scotland had said that girls would not be asked to serve in tuberculosis hospitals. He thought an invitation should be extended to see whether girls were willing to release the Government from that pledge and to serve anywhere. The rate for contracting tuberculosis in sanatoria was not, in general, as great as the rate for contracting it in ordinary hospitals, because greater attention was given to the subject. In time of war the nursing of tuberculosis was a form of service which they might not unreasonably ask the younger generation of women to accept.

Maternity Services

Replying to the debate, Mr. WESTWOOD said he had been asked for details of the local authorities where doctors had refused to work under the schemes for maternity benefit. An arrangement had been made with the British Medical Association through its central body, but some local Branches of the Association refused to accept the terms. There was no scheme in operation in Argyll, but a meeting had been arranged with the doctors with a view to an agreement. All doctors in Dumbartonshire, except those in Helensburgh, had agreed to work the scheme. In Orkney meetings were being held with the doctors concerned. In Selkirk county the doctors had refused, but the matter was being taken up with the B.M.A. The scheme was not yet operating, but meetings with the doctors had been arranged in the burghs of Ayr, Dundee, and Kirkcaldy. In Clydebank burgh only two doctors had agreed to give their services. Dumfries county had a scheme which was not yet submitted, and in Dumfries burgh the scheme was not in operation. From the city of Edinburgh a scheme was submitted in draft. Glasgow had been allowed to postpone operation of the scheme until December, 1942. Mr. Westwood dealt with the provision of nurses, and said that a committee had been set up under Prof. T. M. Taylor, Aberdeen University, to draw up an agreed scale of salaries and emoluments for State-registered nurses employed in Scotland in hospitals and in the public health service, including the district nursing service, and for student nurses. The scope had been extended to cover midwives, health visitors, school nurses, and tuberculosis visitors. A grant to cover part of the cost of any increased expenditure on nurses' salaries was to be paid to hospital authorities. The Department awaited the report of that committee. There was a shortage of approximately 200 nurses for tuberculosis.

Call-up of Doctors' Staffs

On July 7 Sir LEONARD LYLE asked the Minister of Labour whether, in view of the serious shortage of doctors for the civilian population, he would allow the maximum leniency with regard to the calling-up of their essential staffs, such as dispensing and surgical assistants and secretaries. Mr. TOMLINSON, who replied, said that arrangements had already been made for safeguarding essential female staff employed by doctors. Qualified dispensers were not being withdrawn from their employment, and applications for the deferment or retention of secretaries and other assistants were considered individually in the light of their qualifications and the possibility of adequate substitution. Sir LEONARD LYLE asked if a very serious situation was not already occurring with regard to the call-up of doctors, and if it would not grow worse, as was the case with the call-up of miners for the Forces. Mr. TOMLINSON: It is precisely because of these circumstances that the procedure outlined is taken. Sir FRANCIS FREMANTLE: Is there any appeal from a decision given against the deferment of the secretaries? Mr. TOMLINSON: No, not in the ordinary way, but there is always an appeal to the Minister himself in the event of an obvious mistake having been made.

Analgesics given by Midwives.—In reply on June 11 to Dr. Summerskill, Mr. BROWN reported that out of 188 local supervising authorities in England and Wales, 61 had made arrangements, before December 31, 1941, for the instruction of their midwives in the administration of analgesics at childbirth. He would consider the issue of a circular to the other authorities urging like action. Sir FRANCIS FREMANTLE asked Mr. Brown, if such instruction were not part of the regular training of midwives, to see that it was introduced.

Compensation for Nystagmus.—On June 16 Major LLOYD GEORGE informed Sir Francis Fremantle that in 1933 9,603 miners were in receipt of compensation for nystagmus, including 1,535 new cases and 8,068 cases continued from previous years. In 1938 the new cases numbered 1,019 and the continued cases 4,183, making a total of 5,202. Figures for the war years were not available.

Deaths from Cancer and Diabetes.—On June 23 Mr. ERNEST BROWN informed Mr. Leach that the numbers of deaths in England and Wales from cancer and diabetes in 1940 were: cancer, 68,922; diabetes, 5,352. The figures for 1941, which were provisional, were: cancer, 69,228; diabetes, 4,865.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Acting Major JOHN EWART EDSON, R.A.M.C., died on June 10. He was educated at the University of Sheffield and King's College Hospital and graduated B.Sc. (with first-class honours in physiology) in 1929, proceeding M.Sc. in 1930, M.B., Ch.B. (with honours) in 1931, and M.D. in 1940. He was also admitted M.R.C.P.Lond. in 1936. He had held house posts at Sheffield Royal Hospital, and in 1935 was appointed assistant medical officer to the Mayday Hospital, Thornton Heath, Surrey, later becoming the senior assistant medical officer of the hospital. He entered the R.A.M.C. as temp. lieut. in May, 1940, and was promoted capt. a year later. He was a member of the B.M.A.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales*, with the exception of measles, of which there were 244 fewer cases than in the preceding week, there was a general rise in the notifications of infectious diseases. The largest increases were those of dysentery, acute pneumonia, and diphtheria, with 80, 62, and 59 more cases than in the previous week, the two latter diseases being evenly distributed throughout the country.

Although the figure for whooping-cough was only 5 in excess of that for the preceding week, individual counties displayed considerable fluctuations. Rises were recorded in Yorks West Riding, Lancashire, and Kent of, respectively, 35, 30, and 24, and a fall of 81 was reported in Hertfordshire.

The heaviest falls in the incidence of measles occurred in Middlesex 129, Hampshire 63, Surrey 57, and Hertfordshire 54, but, in contrast to the general trend, rises were reported from Kent and Nottinghamshire of 94 and 75.

The increase of 80 cases of dysentery was the biggest difference between two consecutive weeks since last August. Fresh outbreaks occurred in Cumberland 38 cases (Penrith U.D. 31, Ennerdale R.D. 7) and Denbighshire 20 cases (Colwyn Bay M.B. 11, Ruthin R.D. 6, Wrexham R.D. 3). In Yorks West Riding 28 cases were recorded (16 from the outbreak in Wortley R.D., and the remainder distributed through five areas): 13 cases from five administrative areas were recorded in Lancashire.

In *Scotland* the notifications of measles were 253 fewer than in the preceding week, Glasgow having 477, a fall of 223.

Small-pox

Six deaths from the outbreak in Glasgow have been recorded up to July 10. A vigorous campaign for vaccination has been carried out and over 400,000 of the inhabitants have been vaccinated. The cost of the outbreak has been estimated at £30,000. In Swindon the local authorities have made chicken-pox a notifiable disease, and over 18,000 people have been vaccinated.

Returns for the Week Ending July 4

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 1,396, whooping-cough 1,457, diphtheria 728, measles 7,581, acute pneumonia 734, cerebrospinal fever 105, dysentery 242, paratyphoid 14, typhoid 4.

Vital Statistics of New York

The New York Tuberculosis and Health Association, with the co-operation of the various United States Bureaux, has issued a handbook containing the recent statistics of New York and the five boroughs of the city. The birth rate in New York, which had been declining (it was halved between 1915 and 1936), has during the last five years shown a tendency to a slight increase, and the rate of 14.4 per 1,000 of the population recorded in 1940 was the highest rate since 1933. The infant mortality was 33.3 per 1,000 live births for the white population and 54.7 for the coloured. The general death rate for 1940 was 10.2 per 1,000, 0.2 above the value for 1938, which was the lowest death rate ever recorded. The principal causes of death were heart disease and cancer, which accounted for one-third and one-sixth respectively of the total deaths.

The report consists of 17 tables and 14 diagrams, without any text at all. In the foreword it is stated: "Comparative death rates have been computed bringing out areas of the city where special attention is needed." This is hardly the case, as no attempt has been made at standardization for age or sex distribution; the rates are all crude rates. The diagrams, although of artistic merit, are not informative and are often confusing. The tabulation of leading causes of death by rank is unwieldy and makes it very difficult to follow the trend of mortality by age: in one table this method resulted in 18 lists of 10 causes of death.

No. 25

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 27.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1942 (a)	1942 (b)	1942 (c)	1942 (d)	1942 (e)	1941 (Corresponding Week) (a)	1941 (Corresponding Week) (b)	1941 (Corresponding Week) (c)	1941 (Corresponding Week) (d)	1941 (Corresponding Week) (e)
Cerebrospinal fever	108	7	29	4	7	211	13	50	5	14
Deaths		—	3				2	1		
Diphtheria	719	36	162	55	19	919	36	184	29	21
Deaths	12	—	3	5	1	24	—	6	2	2
Dysentery	151	9	41	—	—	113	9	27	—	—
Deaths		—		—	—				—	—
Encephalitis lethargica, acute	6	—	2	1	—	6	1	—	—	—
Deaths		—	—				2	—		
Enteric (typhoid and paratyphoid) fever						127	1	19	4	—
Deaths						2	—	—	—	—
Erysipelas		—	37	9	3		—	39	8	3
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years	31	6	12	6	2	32	1	10	9	2
Deaths										
Measles	6,375	745	607	49	264	8,958	293	107		10
Deaths	7	1	3	3	—	10	—	1	8	—
Ophthalmia neonatorum	94	94	14	—	—	75	1	8	1	1
Deaths										
Paratyphoid fever	8	—	3	3						
Deaths	1	—	—		—					
Pneumonia, influenzal*	655	35	3	10	2	668	22	14	2	1
Deaths (from influenza)	6	—	2	—	—	6	21	2	—	9
Pneumonia, primary		22	216	18	15		—	206	11	—
Deaths				8					10	
Polio-encephalitis, acute	1	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	12	—	1	—	—	9	—	1	—	—
Deaths		—					—	—		
Puerperal fever	—	4	14	4	2	1	1	10	3	1
Deaths		—					—			
Puerperal pyrexia	184	8	17		6	115	2	9		4
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,320	64	211	48	23	955	36	124	75	13
Deaths	—	—	—	—	—	—	—		—	—
Small-pox	2	—			—	—	—	—		—
Deaths	—	—	2	—	—	—	—	—	—	—
Typhoid fever	6	—	6	7	1					
Deaths	—	—	—	—	—					
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—			—	—	—
Whooping-cough	1,394	132	34	48	29	4,837	160	263		7
Deaths	8	—	1	2	1	34	3	4	—	—
Deaths (0–1 year)	288	38	38	25	23	278	16	67	35	17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,886	566	552	187	117	4,214	512	626	197	145
Annual death rate (per 1,000 persons living)			12·4	12·5	†			13·6	13·1	—
Live births	5,976	656	952	464	299	4,612	321	881	433	187
Annual rate per 1,000 persons living			19·7	31·0	†			17·9	28·7	
Stillbirths	239	17	33			213	17	25		
Rate per 1,000 total births (including stillborn)			34					28		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

A whole-day conference under the joint auspices of the Nutrition Society and Food Group (Society of Chemical Industry) will be held at British Medical Association House, Tavistock Square, London, W.C., on Saturday, July 25, beginning at 11 a.m. The subject for discussion will be " Dehydration of Foods and the Effect on their Nutritional Value." The following speakers will take part: Dr. Franklin Kidd on the Principles and Practice of Food Dehydration; Dr. E. M. Cruickshank, Dr. J. G. Sharp, and Dr. E. C. Bate-Smith, on Meat and Eggs; Dr. G. A. Reay, on Fish; Dr. R. J. L. Allen, Dr. J. Barker, and Dr. L. W. Mapson, on Vegetables; and Sir Joseph Barcroft, on the Utilization of Dehydrated Foods. It is proposed to hold a conference on " Trace Elements in Nutrition," probably towards the end of October. Further particulars can be had from the Hon. Sec., Dr. Leslie Harris, Nutritional Laboratory, Milton Road, Cambridge. The Scottish Group of the Nutrition Society is planning the third conference in the series on " Food Supplies in Relation to Human Needs "—namely, " Signs and Symptoms of Deficiency Diseases." This will probably be held in August or September. Further information may be obtained from the Secretary of the Scottish Group (Mr. J. S. Thomson, Rowett Research Institute, Bucksburn, Aberdeen).

The twenty-first Annual General Meeting of the Medical Society for the Study of Venereal Diseases will be held on Saturday, July 25, at 2 p.m., at 11, Chandos Street, Cavendish Square, W. Mr. Aleck Bourne will give an address on non-gonococcal vaginal discharges, their diagnosis and treatment.

The 101st annual meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, Cavendish Square, W., on Thursday, July 23, at 10.15 a.m., when, following the business part of the meeting, there will be a discussion on " Psychopathic Personality." The speakers will include Prof. D. K. Henderson, Major D. C. Carrol, Surg. Capt. D. Curran, Wing Cmdr. R. D. Gillespie, and Lieut.-Col. A. A. W. Petrie.

The London Missionary Society announces that Mr. R. M. Alderton, F.R.C.S., and Dr. Annie Sydenham, members of the Hong Kong staff of the society, are now interned in the Stanley Gaol in Hong Kong.

The Minister of Health visited last week " the country branch " of the London Hospital which has been completed at Brentwood, Essex. Taken over early in 1941 as an Emergency Medical Service hutted hospital, it is now a modern bungalow-type building with 360 beds. The work was financed by the Ministry of Health and the hospital is staffed and run by the parent institution. Much of the equipment has been brought from Whitechapel and the rest provided through the aid of " Bundles for Britain " and the Red Cross and St. John War Organization. A number of beds are reserved for cases for which the Ministry is responsible. The Minister said that this arrangement was part of the general desire for the Emergency Scheme to help the big London teaching hospitals in any way found to be practicable to maintain at least some of their work under their own identity in safer and more peaceful surroundings. He added: " Apart from the many thousands of extra hospital beds which we have provided in various ways under our Emergency Hospital Scheme, we have, under our building programme alone, added over 51,000 beds to the nation's hospital accommodation. The vast majority of these beds have been provided in the form of single-story hutments. Many form sturdy self-contained hospitals—complete with operating theatres and equipment down to the last detail. Others are extensions to existing hospitals."

Letters, Notes, and Answers

QUERIES AND ANSWERS

Autoserotherapy for Hay-fever

Dr. E. M. FRAENKEL (Buxton) writes in reply to C. E. B.: I refer to my letter " Treatment of Allergy " in this *Journal* (1942, **1**, 654). The simplest method for the practitioner is the use of the patient's blood. The blood is drawn from the cubital vein by a sterile syringe of 10 or 20 c.cm. and immediately injected into the gluteal muscle. I recommend the use of 10 c.cm. the first time, 15 c.cm. after 5 days, and 20 c.cm. again after 5 days' interval. In order to prevent clotting, 0.5 c.cm. to 1 c.cm. of a sterile 5% to 10% solution of sod. citrate can first be taken into the syringe.

Income Tax

War Damage Insurance

" DELTA " showed in his income tax return £32 10s. paid for War Damage Insurance of his *x*-ray apparatus, and £7 4s., 50% of the contribution payable on his house. No deduction for income tax purposes is allowed for these payments. He has received £31 in respect of an *x*-ray tube that was damaged as a result of enemy action, and this sum has been deducted from his apparatus account.

*** Section 84 of the War Damage Act, 1941, provides that such payments shall not be taken into account for income tax purposes, but that sums received by virtue of the arrangements made under that Act have to be offset against expenditure on repairing or otherwise making good war damage. As " Delta " suggests, one would normally assume that if insurance contributions are not allowable for income tax purposes the resulting receipts should not be taken into account, but that view is overruled by the specific enactment referred to above.

LETTERS, NOTES, ETC.

The Medical Directory, 1943

J. & A. CHURCHILL, LTD., 104, Gloucester Place, Portman Square, London, W.1, write: To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.

Films in First-aid Teaching

Films, and in especial colour films, have come to stay in the teaching of first-aid practice. It is essential that such films should be good both in matter and in the manner in which they have been produced. We recently described such a film taken in colour by Mr. B. H. Humble and Dr. A. G. Mearns of Glasgow, and lately have had the opportunity of viewing another produced by Mr. W. McAdam Eccles, who since the beginning of the war has been medical officer in charge of a central aid-post in London. The primary object of this film was to show to St. John and Red Cross personnel, particularly those who had not received their " baptism of blood," the precise details, on the night of a raid, of what actually occurs in a post receiving varied casualties. A whole night's work is depicted, and very well photographed, the work of an efficient amateur in the person of Dr. D. W. Seth-Smith. The film shows the organization of the aid-post, with nurses, orderlies, medical officers, and other workers engaged in their prescribed duties on a plan worked out with great thoroughness, and is an example of really good team work. Certainly no pains were spared to present casualties varied in type and differing in their seriousness. The film gives details of treatment which are of great value in teaching, such as are difficult to be grasped except by seeing them actually carried out. The treatment shown is necessarily that which is given by skilled persons in a well-appointed aid-post. In addition, methods of carrying the wounded, the need for quick perception of the gravity or otherwise of injuries, and the decision as to the disposal of the patients are all excellently portrayed. Actual bleeding-points are controlled by digital pressure, by pressure forceps, and by suturing, as in the case of a bad scalp wound.

The producers had the invaluable help of Quartermaster J. Magrill, B.R.C.S., whose skill as a designer of wounds and in stage management is great. Further, his spoken commentary as the film is thrown upon the screen shows him to be a master of the subject. It is, perhaps, unfortunate that a sound track of his comments has not as yet been made, so that the completed film could travel freely about the country and over-seas, and thus give that visual aid to many instructors now at work, and so bring new ideas and new interest before the keen persons in their classes. The film is an 8 mm. one and is silent, and its running time is about half an hour. We commend it unreservedly to all concerned in the efficient training of personnel who have to treat air-raid casualties. Applications to view it may be sent to: The Manager, Colour Film of Casualties, B.M.A. House, Tavistock Square, London, W.C.1.

MEDICINE 100 YEARS AGO

Extract from the *Provincial Medical Journal* of July 11, 1842:

" The poor man must have his doctor as well as the rich, and care should be taken that he be not driven, by expense, to seek advice from sources less competent than such as now supply it to him. The general practitioner should be upheld in making proper charges for his time and skill; but for many and obvious reasons, it would be unwise to deprive him of the power of dispensing his own medicines. If duly qualified practitioners acted under a public licence, the protection of the profession against unqualified and ignorant pretenders might well be left to the authorities of the state, and medical men would thus be relieved from the onerous and invidious task of prosecuting offenders; but the best protection of the profession is to be sought in an enlightened public, who, it must be acknowledged, are not backward in remunerating medical men for their services, and the skilful and duly qualified practitioner will always in the end have the advantage over the empiric and incompetent intruder."